# SUCCESSES AND FAILURES OF HIV AND AIDS CAMPAIGNING IN THE COMMUNITY TESTING IN MAHIKENG LOCAL MUNICIPALITY

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**MINI-DISSERTATION**

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**DECLARATION**

I, Suzan Dimakatso Ndlovu, declare that, this study on," Successes and failures of HIV and AIDS campaigning in the community testing in Mahikeng local municipality approached from the perspective of effect of HIV counselling and testing (HCT) campaign on the implementation of HIV services in Mahikeng Health Sub District, North West Province, South Africa" is my own work and that all sources used are indicated and fully acknowledged by means of complete references. I also declare that I have never before submitted it for any degree or examination at any other university or academic institution.

19/08/2016

**SUZAN DIMAKATSO NDLOVU** **Date**

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**Dedication**

This dissertation is dedicated to all my beloved children, my sister and extended families. To Dr Siko; this is our work. Koko Niki –the mother who was there when I needed one. This is for you all.

**ABSTRACT**

The study examined the successes and failures of HIV and AIDS campaigning in the community testing in Mahikeng local municipality. This study approached it from the perspective of the effect of HIV counselling and testing (HCT) campaign on the implementation of HIV services in Mahikeng Health Sub District, North West Province, South Africa. This is because HCT was one of the interventions of HIV prevention. This study applied the Statistical Package for Social Science (SPSS) version 20.0 to analyse the secondary data used with specific reference to frequencies, standard deviation, mean and percentages to describe the data. Furthermore, the study used the t-test statistics to compare indicators before and after HCT. Pearson correlation was used to establish the relationship between some of the indicators and One way analysis of variance with Duncan Multiple range as a post hoc test was used to compare the indicators in terms of different categories of the population. The most prominent proportional increase after HCT was recorded for clients screened for TB (92.04%), clients tested for HIV (73.07%), and the total number of patients initiated in ART (72.70%), antenatal clients initiated on HAART (64.83%) and HIV pre-test counselled (56.83%). However, low proportional changes were recorded by antenatal clients HIV 1$^{st}$ test (5.98%). The response to HCT was higher among adult female clients who tested for HIV than adult male and children <15 years. The number of adult female who tested positive for HIV was higher than adult male and children <15 years. The study recommended funding for the procurement of point of care CD4 (T cell of the immune system) count equipment to improve anti-retroviral treatment initiation to newly diagnosed HIV-positive patients, that home based HIV testing programme be implemented and marketing of the HCT services be revived to further increase the HCT access to the community.

Key words: HCT, Campaign, TB screening, ART initiation

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**ABBREVIATIONS**

| | | |
|---|---|---|
| AHCT | : | After HIV Counselling and Testing Campaign |
| AIDS | : | Acquired Immune Deficiency Syndrome |
| ANC | : | Antenatal Care |
| ART | : | Anti-retroviral Treatment |
| BHCT | : | Before HIV Counselling and Testing Campaign |
| CD4 | : | T cell (of the immune system) |
| CPT | : | Cotrimoxazole Prophylactic Treatment |
| DHIS | : | District Health Information System |
| Dr KK | : | Dr Kenneth Kaunda District |
| Dr RSM | : | Dr Ruth Segomotsi Mompati |
| EMTCT | : | Elimination of Mother to Child Transmission |
| HCT | : | HIV Counselling and Testing |
| HIV | : | Human Immune Deficiency Virus |
| IPT | : | INH Prophylaxis Treatment |
| MHSD | : | Mahikeng Health Sub District |
| NDoH | : | National Department of Health |
| NiMART | : | Nurse Initiated Management of Anti-retroviral Treatment |
| NMM | : | Ngaka Modiri Molema District |
| NSDA | : | Negotiated Service Delivery Agreement 2010 |
| NSP | : | National Strategic Plan for HIV, STIs and TB |
| PICT | : | Provider Initiated Counselling and Testing |
| PLHIV | : | People Living with HIV |
| PMTCT | : | Prevention of Mother to Child Transmission |

| | | |
|---|---|---|
| SANAC | : | South African National AIDS Council |
| TB | : | Tuberculosis |
| VCT | : | Voluntary Counselling and Testing |
| WHO | : | World Health Organisation |

## DEFINITIONS OF KEY CONCEPTS

**Campaign** - According to du Plessis,van Heerden and Cook(2010,campaign is a process of planning, creating, buying and tracking an advertising project from start to finish.

**HIV Counselling and Testing (HCT)**: This is an umbrella term used to describe services that combine HIV counselling and testing. The HIV testing could be voluntary (client initiated) or provider initiated (NDoH, 2010).

**Voluntary Counselling and testing (VCT)**: HIV counselling and testing that involves individuals and couples actively seeking out these services. The client/s volunteer to undergo HIV counselling and testing and the three Cs must be observed; informed consent, counselling and confidentiality (Rehle, 2010).

**Medical male circumcision (MMC)** is the surgical complete removal of the foreskin of the penis. This intervention is voluntary and is done to reduce the men's risks of acquiring HIV through heterosexual vaginal sex (SANAC, 2013).

**Provider Initiated counselling and testing (PICT)** also known as routine offer to testing**:** HIV counselling and testing which is routinely initiated and recommended by Health care providers to all clients attending the Health care facilities as a standard component of medical care (SANAC, 2013).

**TB screening**: This is the early recognition of patients with suspected or confirmed TB disease using a tool with four to five questions about TB (NDoH, 2009)

**HIV Prevalence:** According to web definition, http://stats.oecd.org/glossary/detail,HIV prevalence means people tested in each group who were found to be infected by HIV or HIV positive.

**HIV Incidence:** According to web definition, http://mdgs.un.org/unsd/mdg/Metadata, HIV Incidence means new HIV infections in a population during a certain period.

**CD4 count:** This involves white blood cells (lymphocytes) that help protect the body against infection. The CD4 count broadly reflects the state of the human immune system (NDoH, 2010a).

**Pre exposure Prophylaxis** is an HIV prevention intervention in which an uninfected individual takes an oral fixed dose combination of tenofovir disoproxi fumarate and emitricitabine daily. This treatment is taken before one is exposed to HIV (Karim, 2013)

**Post Exposure Prophylaxis:** The anti-retro viral prophylaxis is given after possible exposure to HIV, (e.g. through needle stick or sexual assault) in order to minimise/prevent the risk of sero-converting to HIV following such exposure (Karim, 2013)

**Child**: This refers to all individuals under the age of 18 years (SANAC, 2010)

**Rapid HIV test**: This is a test, usually from the finger prick (or heel prick in babies), used to determine the presence of HIV antibodies in the blood and normally taking 10-30 minutes to perform. This test is not performed on children under 18 months as they continue to carry maternal antibodies in their blood to this age (SANAC, 2010).

# CHAPTER ONE

# OVERVIEW OF THE STUDY

## 1. INTRODUCTION

### 1.1 Background

HIV epidemic is one of the most significant global public Health challenges South Africa is facing and its impact is clearly visible at all levels of the society. Treating and taking care of people living with HIV requires a lot of resources, skills and support (NDoH, 2013). One of the most significant damages caused by the disease is the number of orphans as a result of AIDS which is estimated at 1 400,000 in South Africa. This leaves grandparents and older children to pick up the pieces which cause financial, emotional and developmental problems. An estimated 240,000 people died in 2012 with age group between 15-24 being greatest in South Africa (Alvarez-Uria, 2013).

Globally, an estimated 34 million people were living with HIV in 2011 where Sub Saharan Africa remains the epicentre of the epidemic with nearly 70% of the world's burden of HIV and AIDS. South Africa is the worst affected country in the world with the estimated 6.1 million people living with HIV including an estimated 410 000 children under 15 years in 2012. This is the largest number of people living with HIV in one country in the world (NDoH, 2013).From 1990; South Africa tracked the HIV epidemic mainly through the antenatal sentinel surveillance to monitor the HIV prevalence trends. The findings of the surveillance show that the overall national HIV prevalence estimates among 15-49 year pregnant women remained the same rate of 29.5% in 2011 and 2012 (NDoH, 2013).

According to UNAIDS, HIV incidence in South Africa is estimated at 370,000 in 2012 of which 1.37% were adults aged 15-49 years while the number of children under 15 years declined substantially to an estimated 21,000. The decline could be attributed to the acceleration of the prevention of mother the child transmission services (SANAC, 2013).

In 2012, provincial HIV prevalence estimates remained largely unchanged when compared to 2011. The highest HIV prevalence was recorded in Kwa-Zulu Natal which remained constant at 37.4% in 2011 and 2012. The lowest HIV prevalence was recorded in Western Cape and Northern Cape each with less than 20% in 2012(NDoH, 2013). Out of nine provinces, five (Free State, Gauteng, Kwa-Zulu Natal, Mpumalanga and North West) have recorded HIV prevalence estimate above the national estimate of 29.5%. According to NDoH (2013), there is an increase of HIV prevalence in North West Province from 1.1% (1990) to 29.9% (2003), and remains constant at an average 29.8% in 10 years (from 2003-2012). There is a consistent decrease in HIV prevalence for Dr Kenneth Kaunda District from 37% (2010) to 36% (2011) to 29.1% (2012). Bojanala recorded consistent increase from 29.3% in 2010 to 33.9% in 2011 to 35% in 2012. Dr Ruth Segomotsi Mompati District increased from 20.5% in 2011 to 24.3% in 2012 and Ngaka Modiri Molema District increased from 24.9% in 2011 to 25% in 2012.

The South African government (i.e. Department of Health) developed prevention and control approach on HIV prevalence such as ABC; abstinence, faithfulness to one sexual partner and consistent and correct use of condom. According toPettifor,Kleinschmidt,Levin,Rees, MacPhail, Madikizela-Hlongwa, Vermaak, Napier, Stevens and Padian (2005), youth who had more than one sexual partner were likely to be infected with HIV than those reported as having engaged in transactional sex (NDoH, 2013). In recent years, scientific innovations in HIV control have expanded the range of available interventions which have been employed in South Africa. The following are the prevention and control approaches put in place, namely; medical male circumcision (MMC), pre-exposure prophylaxis ( PrEP), post exposure prophylaxis (PEP) and treatment as prevention (TasP).

These interventions have all sparked interest due to their potential effectiveness. Anti-retro viral threatment (ART) reduces HIV transmission by 96%, PrEP, PEPand MMC by more than 60% without additional actions required from the person. It is important to indicate that PrEp and PEP are meant for use by uninfected individuals. Due to limited resources, scaling up all these interventions may not be possible,

however, PrEP and PEP could be more of a cost saving interventions over 20 years than implementing ART. Given the difficulty in identifying and retaining high risk individuals in PrEP and PEP, it may be practically not feasible to scale up these interventions but may need to continue with ART programme at the larger scale (Alistar, 2014).

Although the study topic is the success and failures of HIV and AIDS campaigning in the community testing in Mahikeng local municipality, the study will approached it from the perspective of the effect of HIV counselling and testing (HCT) campaign on the implementation of HIV services in Mahikeng Health Sub District, North West Province, South Africa.

## 1.2 APPROACHES ON PREVENTION AND CONTROL OF HIV IN SOUTH AFRICA

The approaches to prevention and control of HIV in South Africa is based on the HIV transmission routes, namely; unprotected sexual intercourse with an infected partner, contact with HIV infected blood and needle sharing, and vertical HIV transmission from mother to child during pregnancy, labour and breastfeeding(Evian, 2012).These approaches are described below:

**Prevention of mother to child transmission** (PMTCT) programme is implemented in the public Health facilities where pregnant women are tested for HIV and if tested positive for HIV, they are initiated on antiretroviral treatment (ART). It is imperative to note that HCT is an entry point to the PMTCT intervention. This approach aims to reduce vertical HIV transmission by <2% among infants at 6 weeks after birth and <5% for children at 18 months of age. This is coupled with exclusive infant feeding options of which government promotes exclusive breastfeeding due to safety issues.

**Medical male circumcision (MMC)** is the surgical complete removal of the foreskin of the penis. This intervention is voluntary and is done to reduce the men's risks of acquiring HIV through heterosexual vaginal sex. The approach is implemented in the public Health facilities at a higher scale where safer sexual practices (such as correct

and consistent condom use) are strongly emphasized to further reduce the risks of HIV transmission regardless of circumcision. MMC is part of a comprehensive HIV prevention strategy that is outlined by World Health Organization (WHO).

**Pre exposure prophylaxis** (PrEP) prorgamme is an HIV prevention intervention in which an uninfected client takes antiretroviral treatment as a prophylaxis to reduce/prevent the spread of HIV. This treatment is given before the client is exposed to HI virus. The service is available and not limited to cases where, for an example, one sexual partner is HIV postive and the other one is HIV negative and they are planning to have an baby. For one to access this service, HCT should be done and the client should test HIV negative.

**Post Exposure Prophylaxis (PEP)** programme uses ART as prophylaxis to people after possible exposure to HIV to reduce/prevent the risk of sero-converting to HIV. It is particularly important for people who have been sexually assaulted or people who have been exposed to blood through a needle prick injury at work. The service is mainly rendered in hospitals; however, clinics offer short term treatment and refer clients to the hospitals for further management. HCT services serve as an entry point and only clients who tested HIV negative may receive the service.

**Screening of blood and body fluids**is the procedure where the human body fluid and blood are tested for HIV using the laboratory services. HIV can be transmitted through contact with infected blood or body fluids, therefore, the South African government has effective HIV screening of blood products for medical use to stop HIV transmission through blood transfussion. Screening all blood supplies for HIV is standard in the country and HIV results are indicated on the blood product package (Alistar, 2014).

**Safer sexual practice and condom use education** is a service rendered through Health promotion programme and aims at taking measures to prevent transmission of

STIs including HIV during sexual contact. Using such protection prevents bodily fluids that carry HIV from being exchanged during sex. Focus is mainly on correct and consistent use of condoms (male and female) during sexual contact, risk factors and how to prevent them. The condom demonstration and education is also rendered during counselling sessions between the counsellor and the client.

**Voluntary counselling and testing (VCT)** programme involves individuals and couples actively seeking to know their HIV status. The client/s volunteer to undergo HIV counselling. The client has the choice to decline the HIV testing during counselling session. The service is initiated by the client/s and is rendered in all public Health facilities using the rapid HIV test. This approach was rendered prior to HCT campaign in the country.

## 1.3 HIV COUNSELLING AND TESTING CAMPAIGN

HCT campaign is a campaign that intend at attracting people for counselling and testing for HIV, it allows clients and providers to initiate the service. HCT campaign was launched in 2010 and implemented in April 2010 in all public Health facilities in South Africa. There was a policy change in this regard and the change was informed by the findings of the HIV prevalence and incidence report which showed that there is an increase in the incidence and that prevalence has been stable since 2010 to 2012 at 29.5%. HCT comprises two approaches, namely, Voluntary Counselling and Testing (VCT) where clients volunteer to undergo HIV testing and the second approach is newly introduced as a provider initiated counselling and testing (PICT) where the service provider initiates the HIV testing service to the client. In this approach the clients still have the right to accept or decline the service (Rehle, 2010).

HCT campaign contributes to the prevention of HIV transmission by identifying and informing individuals, partners, couples and families of their HIV status. Counselling is offered to all clients receiving the HCT service as a package to develop appropriate sexual or other risk reduction measures with the client/s, and also to prepare the client/s for the HIV test results. According to Leon, Colvin, Lewis, Matthews and

Jennings (2010), HCT is offered by trained personnel, for an example, nurses and community counsellors offer provider initiated counselling and testing including those who volunteer to receive the HCT services. Each public Health facility is allocated a particular number of community counsellors to render HCT together with nurses. The community counsellors are paid monthly stipend for the work they render in the clinics and hospitals. The test is done on-site using the rapid HIV test which takes about 20-25 minutes to receive/read results; the client is actively involved in reading and interpreting the HIV test results.

HCT is a prerequisite to access antiretroviral treatment (ART), prevention of mother to child transmission (PMTCT) and medical male circumcision (MMC). HCT campaign is integrated with HIV testing, ART initiation and TB screening and other services. The objectives of the HCT are to encourage individuals, couples and families and communities to test for HIV in the interest of their own Health and to facilitate integration of HCT with other diseases (SANAC, 2010).

## 1.4 PROBLEM STATEMENT

South Africa's burden of disease is, on the average, four times larger than that of developed countries and almost double of developing countries. Given the circumstances, it is also expected also to result in a larger burden on finances, facilities and human resource (referring to increased workload) in the country compared to other countries. There is a need for National Health insurance (NHI) in South Africa, however, it should consider the specific quadruple disease burden that the country is facing, which would require a unique design from that of other countries (Conradie, Cox and Wilkinson, 2013)

Despite having the world's biggest antiretroviral treatment (ART) programme, South Africa has been paying significantly more than other low and middle income countries for ART. In 2010, bound by terms of tender for ART, the government bought one third of its product at internationally competitive price. The cost of ART decreased by 53% in 2012 because of three in one or fixed dose combination (FDC) drug to reduce pill

burden and to improve adherence to treatment. The HIV and AIDS programme is largely funded by donors, accounting for less than 25% of HIV response, conversely, availability of funding is expected to grow (NDoH, 2013).

Responding to HIV and AIDS is one of the most important tasks facing South Africa today hence government made the fight against this disease one of its top priorities. In an attempt to prevent and control HIV, the South African government developed the integrated HIV, STIS and TB Plan, adopted the UNAIDS 20-year vision namely, zero new HIV and TB infections, Zero new infections due to vertical transmission, zero preventable deaths associated with HIV and TB, and zero discrimination associated with HIV and TB(NDoH, 2013).Two of the key objectives of NSP 2016-16 are; (1) Maximise HIV and TB screening for South Africans annually and rapid roll out to ART, (2) reduce vertical HIV transmission through the PMTCT programme. The objectives indicated above, informed the development and implementation of the HCT campaign through HIV testing, ART roll out and TB screening.

The National HCT campaign focused on HIV counselling and testing (voluntary and provider initiated) to increase access to anti-retroviral treatment (ART) services and integrated with TB through TB screening. ART initiating facilities were increased to increase ART uptake, for an example, in Mahikeng Health sub district (MHSD), ART initiating facilities increased from 2 (hospitals) in 2009 to 34 in 2012. Prior to 2010, HIV counselling and testing focused on voluntary services where clients volunteered to test but the Health workers could not initiate HIV testing (Johnston, 2010).In the planning process, the following resources, trained counsellors and nurses, rapid HIV test kit, ART stock, readiness of facilities to initiate patients on ART, TB screening tools and tests, service marketing tools and updated guidelines were made available for effective implementation of HCT campaign in the country.

Therefore, the South African government followed the recommended integrated HCT campaign approach. The indicators of HIV covered by HCT are based on HIV services, namely, HIV testing, ART intiation and TB screening. The indicators are as follows: number of HIV tested (Pre-test counselled, HIV test and HIV positive),

number of ART initiated, (total intitiated on ART, Adult male, female and children intiated on ART) and number of TB screened and HIV positive with confirmed TB.

This study attempts to compare the trends in the results of these indicators based on the enumeration carried out in Mahikeng Sub District before and after the introduction of HCT campaign.

## 1.5 THE RESEARCH QUESTIONS

The following research questions emanate from the study:

- Are there differences in the HCT indicators before and after campaign
- What are the differences in the indicators of TB screening before and after HCT campaign
- What are the differences in anti-retroviral treatment (ART) initiation before and after HCT campaign?

## 1.6 OBJECTIVES OF THE STUDY

The main objective of this study is to determine the effect of HCT campaign on the implementation of HIV services in Mahikeng Health sub district.

The specific objectives are:

- To determine differences in HCT indicators before and after campaign
- To examine the differences in the indicators of TB screening before and after HCT campaign
- To compare the differences in anti-retroviral treatment (ART) initiation before and after HCT campaign

## 1.7 HYPOTHESES

The following hypotheses for the study are stated in null form.

There is no significant difference between HCT indicators before and after campaign.

There is no significant difference between the indicators of TB screening before and after HCT campaign.

There is no significant difference between anti-retroviral treatment (ART) initiation before and after HCT campaign.

## 1.8 SIGNIFICANCE OF THE STUDY

The finding of this study will provide information and insight into the trends of HIV services before and after the HCT campaign;

It will also show the level of awareness and of response on HCT indicators to the people. It will highlight the coverage/number effectively reached by HIV services to the Department of Health. The results will show how the campaign has contributed to the prevention and reduction of HIV to the government and highlight areas needing policy changes in terms of prevention and control of HIV services to the policy makers.

## 1.9 DELIMITATION OF THE STUDY

The purpose of demarcating this study was to make it manageable and thus far, it was delimited to one sub district in the Ngaka Modiri Molema District of North West Province. There are five sub districts in the district and Mahikeng being the largest, therefore the findings of the study may be generalised to other Health sub districts within the district.

## 1.10 PLAN OF THE STUDY

This study follows the general format proposed by Mouton (2001).

**Chapter one**: Introduction and orientation of the study. This chapter introduces the topic. Among other things, it discusses the background of the study, the methods used to collect data as well as how data was analysed.

**Chapter two**: The literature review of the study reviews literature on the topic from secondary sources.

**Chapter three**: The research design and methodology explains the method of research that was used and the research design followed.

**Chapter four**: Data presentation, discussion and analysis of the collected data.

**Chapter five:** Summary, findings, recommendations and conclusion summarise the entire study whereby the findings and recommendations are provided as well as the conclusions reached.

## 1.11 CHAPTER SUMMARY

This chapter has provided a general background to the study and emphasised the approaches that South African government employed for the HCT campaign and the resources allocated for the implementation of the approaches. Even though the information focused more on HCT campaign than the targeted sub district, the HCT campaign is nationally driven. The overview was given about the implementation of VCT and HCT campaign to give clear indication on national initiatives to reduce HIV incidence and control the HIV prevalence. This chapter also highlighted the consequences of HIV, costs implication of HIV services and attempts made by government to control HIV in the country.

The next chapter provides a general review of literature on the effect of HCT campaign on HIV services and further focuses on the contribution of the HCT campaign on HIV services such as HIV testing, ART initiation and TB screening.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 INTRODUCTION

This chapter is about the literature review focusing on introduction, campaign (definition, use, and types), planning and implementation of the HCT campaign, leadership and HCT contribution to the HIV services. The literature focuses mainly on the effect of HCT campaign on HIV services.

## 2.2 IMPORTANCE OF CAMPAIGN

Campaign is a process of planning, creating, buying and tracking an advertising project from start to the end (du Plessis,van Heerden and Cook, 2010).Lapinski ( 2009), discovered that in the United States of America, communication,as another form of campaign,is a way of exchanging information and serve as an instrument acquiring knowledge. Gonzalez (1965) further defined mass campaign as the symbolic exchange of shared meaning,information and that all communicative acts have a transmission and ritualistic component. It was used in Geneva by WHO where it was found that vertical or mass campaign approach formed the basis of specific activities for the solution of Health problems. Mass campaign was taken as a Health programme that concerntrated its efforts on application, community wide basis designed for the control of the disease.

Strategies for change need to address social inequality and the empowerment of community including women if the rates of transmission are to decline. Gilbert and Walker (2002) showed that powerlessness is a risk factor for the disease. For information to reach the wider community, campaign may be an option to scale up education. In South Africa, campaigns through print and electronic and outreach were implemented as a way of empowering the community about HCT campaign. It is imperative that programmes be developed and reviewed as needs evolve and be

tailored to smaller target markets, using a variety of media to reach communities that are not likely to be reached (Bith-Melander et al., 2010). In this case, the Department reaches the community at large through the use of Health promoters, community members and public Health beneficiaries during facility Health talks.

## 2.3 THE USE OF CAMPAIGN IN HEALTH SERVICES AND HIV SERVICES

Health communication may be used to increase audience knowledge and awareness on Health issues, influence behaviours and attitudes towards Health issues, demonstrate Health practices and benefits of behaviour change. The HCT campaign was initiated and implemented to scale up HIV testing including ART initiation and TB screening in South Africa. For the HIV service to be accessed by the community, the HCT campaign was conducted to raise awareness and education about the availability of the services. This is supported by Mukandavire, Garira and Tchuenche (2009) that, public Health edicational campaigns can slow down the epidermic and become more effective when implemented at community level.According to Kaler (2004), educational campaigns and other interventions may need to be rethought, to change sexual risk behaviour of individuals.

The success of these public campaigns depends on the educational and cognitive level of the addressees because HIV prevention and intervention need addressees such as community to understand the cause, transmission and treatment of the disease (Rindermann and Meisenburg, 2009). This approach is used mainly in the country through Health promotion where they target the individuals and community members.Lawan (2009) conducted a study on the effect of multi-faceted Health education on HCT among pregnant women attending clinic in Nigeria and found that campaign improved attitude and uptake of HCT in primary Health care (PHC) setting and recommended that it should be adopted for PHC systems. In South Africa, all pregnant women undergo HCT. Even though they have the right to opt out HIV testing, the HIV testing rate has always been above 95% due to information and counselling they receive prior to the test for HIV.

HCT campaign in South Africa, is nationally driven to encourage people to know their HIV status and to access counselling and treatment. This campaign is the largest scale up in the world and considered as a crucial step in the fight against HIV and AIDS. The change from voluntary counselling and testing (VCT) to HIV counselling and testing (HCT) was due to the fact that patients accessed HIV testing when they were sick hence more patients were put on ART programme (SANAC, 2010). The HCT campaign messages focused on offering and encouraging people to test when they attend the public Health facilities.

Marketing communication should consider how the target audience behaves and consider how target markets interpret information, and focus on reminding clientele to respond to the messages given and/or to use the service provided (Fill and Highes, 2008).However, Hill, Watson, Rivers and Joyce (2007) showed that the language that people speak, through talk, promotion, marketing or any other mode of communication is important. In the case of South African HCT campaign, language was considered for each population group and was printed in South African languages to reach to larger population.

## 2.4 MEANING OF CAMPAIGN

To prevent and manage the HIV epidemic in South Africa for the next decade and beyond, there should be control and reduction of the new HIV infections through a comprehensive national HIV prevention programme on a scale to have an impact (Nyabadza and Mukandavire, 2011). According to Kunaga and Rosenfeld (2004), creating the educational system is essential to widening young people's horizons, fostering the habit of rational thinking, and guidance towards ethical orientations of responsibility for themselves and others. Education is a major influence on informed decision making towards Healthy and long life (Rindermann and Meisenburg, 2009). Education forms part of the campaign with the aim of improving Health aspects of the community.

It remains critical to consider that decision on whether a mass campaign is a suitable method of dealing with Health issues or epidemics is dependent on the impact or effect of the disease, population attitudes, availability of relevant resources and skills, and operational feasibility (Mills, 2005). Therefore, the campaigns discussed below were studied in line with their objectives and the use. A ccampaign uses two approaches which are not mutually exclusive and this means that Health service delivery and mass campaign should be coordinated and combined in various ways (Mills, 2005). HCT services and TB screening has been the standard Health service rendered in the events.

Effective Health communication must be tailored for the audience and the situation to inform people about ways to enhance Health or to avoid specific Health risks(du Plessis, 2010). Health communication can be in three folds, public Health campaign, Health education and between clinician and patient with the aim to disseminate Health information to influence personal Health choices by improving Health literacy. The Health education rendered during counselling session between the counsellor and client to empower the client to make informed decision. A Healthy lifestyle campaign was once conducted in Singapore from 1992 and continued in 2012 to raise awareness on the benefits of Healthy lifestyle. As a result, citizens of Singapore exercise more, eat better and undergo regular Health screening (HPB, 2012). During community campaigns in South Africa, Health service delivery and social mobilization is offered so that people can easily access the service.

HIV free generation campaign was launched by the First Lady of Uganda in 2013 to eliminate Mother to child transmission (eMTCT). This campaign was coupled with service delivery on HIV prevention, awareness and education of preventive behaviors. The campaign report showed that the campaign yielded positive results in relation to the eMTCT (UHMG, 2013). The lesson learnt from this campaign results is that, the campaign is informed by statistics and serve as a response to address the challenges and needs identified. This form of campaign can be easily accepted as it addresses issues on the ground.

## 2.5 TYPES AND OBJECTIVES OF CAMPAIGNS

There are types of campaigns that could be used based on the purpose of the campaign and could be done through mass media where channels are used to send messages to large, diverse groups of audiences such as masses (du Plessis, 2010). There are campaigns that require electronic technology such as emails and web sites. The following examples are web based campaigns.

**Regular campaign** is considered as one-time email used when one wants to send one shot campaign which does not require automation. The unique message could be created on a flyer.

**Auto responder campaign** allows us to automate email campaigns and it uses the subscribe date and time to automatically send emails, for an example, car dealers use this type which allows the client to send the question to the dealer by email and allows the dealer to respond immediately.

According to du Plessis (2010), in campaign, establishing marketing objectives is important, where marketers set specific media objectives to give direction to how the overall communication and marketing objectives will be met. Planning for the campaign involves finance, human resource, material resources, capacity (skills), time frame, population targeted, etc. In the case of the HCT campaign, these issues were taken into consideration during planning and resource allocation. The South African government embarked on several public Health campaigns to bring about change in the community to improve Health outcomes and these campaigns were mainly related to the theme or issues of public Health. The following are some of the campaigns;

Kick TB campaign was conducted by the Department of Health in partnership with Desmond Tutu TB centre at University of Stellenbosch linked Soccer World Cup hosted by South Africa in 2010. The objectives of this campaign were to increase awareness and knowledge of TB, dispel common myths and misconceptions that contribute to TB stigmatization, and promote behavioural change to prevent TB infection. The outcome of the campaign was to get people adopting safer infection control, Tb screening and community empowerment (Desmond Tutu TB Centre.,

2010). From this campaign, it came out that involvement of key role players is crucial for the success of the campaign.

Born HIV Free campaign was conducted in South Africa in 2010 supported by Global Fund Ambassador for the protection of mothers and children against HIV. The campaign ran for five months and gathered more than 700,000 online signatures (The Global Fund., 2010). The implementation of the campaign shows that it should be time bound and have targets, for an example, HCT campaign set targets for National, Provinces, Districts and sub districts. Malaria Elimination campaign was conducted in Botswana in 2010 by the Ministry of Health with support from World Health Organization (WHO) and other partners. The campaign focused on zero local malaria transmission by 2015 and the theme was "Unite to end malaria" (World Health Organization., 2010).

TB free campaign was conducted by Sanofi in partnership with Aurum Institute and Department of Health at Limpopo Province, South Africa. This campaign was driven by the fact that TB causes more deaths among people living with HIV than any other disease in South Africa. The activities of the campaign were for training community Health workers as directly observed treatment (DOT) supporters, run education and awareness. The objectives were to increase cure rates, improve TB treatment adherence and TB detection through TB screening in the homes (Sanofi, 2011).

It is learned that the campaigns conducted were mainly public Health related and focused on specific intervention/programme. All or more of these campaigns were successful in achieving their set objectives. However, it should be noted that the campaigns were not of wider-range as that of HCT which was started in 2010 in South Africa. Though targets are set every year, the campaign will run until 2016 as indicated in the NSP 2012-16 and may continue pending the outcome report of NSP and HIV incidence and prevalence reports.

## 2.6 PLANNING AND EXECUTION OF HCT CAMPAIGN

Planning is of fundamental value to prevent and control HIV in the country. The literature review depicts failure to divide the markets into HIV promotion and communication because the strategies used may not be appropriate. Citizens should be part of the design of those programmes at the planning phase of the campaign (Trauth, 2006).The HCT campaign provides integrated services at all levels of the public Health service delivery sysem in South Africa. The campaign seeks to ensure that people who test for HIV (whether positive ornegative) are encouraged and motivated to maintain Healthy lifestyle through positive Health seeking behaviour and access to anti- retroviral treatment (ART) where needed. This is suported by the findings of the study conducted by Dayab (2010) that, if ART became available, more people were likely to access HIV counselling and testing.

A vigorous community education programme is essential if the introduction of ART is to be effective in promoting HCT uptake (Dayab, 2010). At the beginning of the HCT campaign, the robust awareness and education campaign was conducted in the communities using electronic and print media (such as radio, television) and word of mouth through Health promoters at the clinics and public areas.Yan (2012) stated that 74% of today's youth have at some point searched the internet for Health information. The myths are easily developed on the subject matter if no supervision or institution is taking leadership of the messages. This is supported by Fill and Highes (2008) that the campaign should consider how audience processes information which means that follows up be made post campaign.

The South African National AIDS Council (SANAC) coordinated the development of the campaign in the country with active involvement of the citizens through relevant stakeholders to ensure buy-in and support. The planning of this campaign emanated from the report of antenatal HIV syphilis survey 2009 which revealed that there is a need to integrate TB and HIV epidemics through the NSP 2012/16. The following were issues that were taken into consideration and informed resource allocation for the HCT campaign:

- Developed integrated HCT campaign which focused on three facets; HIV testing, TB screening and ART initiation
- Training on provider initiated counselling and testing (PICT) and nurse initiated and management of ART (NiMART) to nurses, recruitment, training and placement of community counsellors in the public Health facilities
- The use of rapid screening technology such as rapid HIV test kit, TB Screening questionnaire, relaxation of accreditation criteria for ART initiating facilities,
- Budget for laboratory services and drugs for HIV and TB
- Policy changes for ART, PMTCT, HCT and TB interventions

Marketing of the campaign was planned to reach the country wide population through the use of electronic, print medium and Health talks. The community members were involved at facility level during the readiness assessment for ART initiation where different community structures were part of the team to raise awareness and education and buy-in for the HCT campaign. The National Department of Health selected the priority programmes with annual target per province, district, sub district, facility and institution. These were the priority programmes HCT,TB screening, condoms, medical male circumcision (MMC) and ART.

Provinces were mandated to establish the HCT nerve centres to facilitate the implementation of the campaign as planned and ensure constant availability of resources such as drugs. The monitoring tools and clear indicators were shared with all relevant stakeholders to ensure reporting. Furthermore, it became a standard that HCT be the standing item in management meetings at all levels and that HCT campaign services be rendered in events and meetings. This has normalised the HCT campaign as the routine service in most gatherings and at facility level.

## 2.7 INTRODUCTION OF HCT CAMPAIGN

The HCT campaign aims at early identification of people living with HIV who do not know they are infected and may be unknowingly transmitting HIV to others (NDoH, 2010)

### Risks of HIV transmission

Myer (2011) reported that men who perceive themselves at high risk of having HIV do not seek testing. This is supported by Holt (2012) who found that men who have sex with men (MSM) have never been tested for HIV and many men do not test as often as recommended. The above findings support the fact that it is not only lack of knowledge and education about HIV that hinders acceptance to HCT but even the fear of receiving the positive HIV status. Men who have sex with men (MSM) are at high risk of HIV infection, with gay men at the highest risk, therefore prevention and treatment of HIV for MSM is urgently needed. HIV infection was at one time, associated only with gays older than 25 (Lane, Raymond, Dladla, Rasethe, Struthers, McFarland and McIntyre, 2011). Suarez (2001) is of the view that gay and bisexual men are judged at risk. It may assume that HCT accessibility is key to the population not excluding the general population.

This is further clarified by Garrett and Prestage (2012) who noted that nearly one third of main sex partners were not disclosed to and were at risk of contracting HIV, whereas a pattern of lower disclosure among casual partners was evident. This may indicate that non-disclosure of HIV status to a sexual partner contributes to HIV transmission. The main barriers to HIV testing include perceiving oneself as low risk, fear of unsolicited disclosure, stigma and discrimination that may result from HIV testing (Wei, 2007). Johnston (2010) is of the different view that HIV testing acceptance is associated with being older, married or living with a partner, having higher education and partners not using condoms. The results of these studies showed that it is important to address the issue of risk behaviour, disclosure, stigma and discrimination.

Ma, et al. (2008) discovered in China CARES programme recipients that HIV testing uptake may be low irrespective of knowledge on HIV. The results of this study may not be generalised because it was conducted with a smaller population, but there is a need to implement a more effective education programme to increase the acceptability of testing. Some of the risks of HIV transmission are ineffective implementation and use of PMTCT services, incorrect and inconsistent use of condoms, non-adherence to ART especially when given as prophylaxis (e.g. post exposure prophylaxis) and unknown HIV status. If these risk factors are not controlled they may contribute to increased new HIV infections in the country.

**Leadership in the era of HIV in South Africa**

Rindermann and Meisenburg (2009) argue that HIV prevention programmes in Sub-Saharan Africa have been compromised because most African leaders have accepted the myth that poverty and discrimination are the major driving forces of HIV epidemics. Effective prevention of HIV transmission in Sub-Saharan Africa will not be achieved until national and community leaders can be convinced that HIV prevention requires reduction in risky sex behaviours. Treatment Action Campaign (TAC) held the late Health Minister, Manto Tshabalala-Msimang, responsible for the deaths of 600 people a day who could have been saved if they had had anti-retroviral treatment. Nutrition is beneficial in a long term but ART though expensive, its outcome outweighs the cost implication thereof (Baleta, 2003). Therefore, getting priorities right was important at that time. The impact of HIV on deaths showed that the minster could have prioritised ART while addressing nutrition so as to save lives.

The former South African President, Thabo Mbeki, viewed malnutrition and extreme poverty as the root cause of AIDS epidemic and that was criticised (Horwood, 2010). However, if the matter of poverty was looked at after approval for ART in the country, 600 lives a day could have been saved while addressing the poverty and nutrition issue. Criticism was mainly about getting priorities right by providing ART not necessarily poverty and nutrition at that time. This indicates that the late minister for Health and the former President had the same understanding about HIV impact which could not save lives.

Poverty creates an environment in which individuals are susceptible and vulnerable to HIV, therefore, poverty reduction would undoubtedly be at the core of sustainable solution to HIV and AIDS in the country (Fenton, 2004). Sekandi (2011) found that the spread of HIV depends on factors such as availability and affordability of medication and medical advice. The leader's response to HIV and AIDS epidemic gave an impression that the understanding was politically motivated and a form of national denial because the country was in urgent need of ART more than poverty and nutrition intervention.

The discussions above, it shows the need for leaders to know the truth about HIV and AIDS including TB epidemic in the country so that effective and efficient decisions may be taken in the best interest of South Africans. Socio-economic interventions should be enhanced to deal with poverty, unemployment, food insecurity as they contribute to the spread of HIV or worsen the epidemic, the matter did not receive much criticism because ART programme had been implemented (Fenton, 2004). It would be interesting to find a study focusing on evaluation of poverty and malnutrition as contributory factors to the spread of HIV in South Africa, mainly to get progress of how far is the South African government in implementing the economic interventions. Will these factors be tackled with the same drive as with the ART intervention?

**Resource allocation for the HCT campaign in South Africa**

The proportion of HIV tested and post-test counselled patients increased with the introduction of the rapid test (Ma, 2008). HCT services in Africa began in the early 1990s, with limited availability and coverage, where complex laboratory systems hampered expansion (Marum, Taegtmayer, Pakekh, Mugo, Lembariti and Phiri, 2012).This is supported by the fact that The South African government used the rapid HIV testing for the HCT campaign implementation to increase access to the service. Budget was set aside for the HCT campaign with specific reference to but not limited to; (1) Human resource and development such as recruitment of community counsellors and their training, , training of nurses on PICT and NiMART to fast track the HCT and ART uptake; (2) Medicine (anti-retroviral treatment, TB treatment), (3) Health screening technology such as laboratory services including rapid test kits and

Gene Xpert technology, (4) Marketing and social mobilisation including electronic and print media, (5) Development and orientation on revised guidelines such as HCT, PMTCT, ART and TB, and also TB screening questionnaire( tools)

**Capacity building to improve access to HCT services**

Increased staff capacity building on provider initiated counselling and HIV testing (PICT)and better field supervision were employed to achieve universal access to care for TB/HIV co-infected patients (Nateniyom, 2008). This is supported by Odhiambo (2008) who stated that PICT represents a paradigm shift in the implementation of the HCT campaign. Huerga (2010) indicated that TB/HIV integration is key to the success of HCT, improving lives of community and have a very positive impact on the management of TB/HIV patients. The more the number of clients screened for TB and HCT, the more the demand to improve the services hence TB screening linked to HCT campaign.

Staff training, multitasking and access to HIV care contributed to the high acceptance of HIV testing. Pope (2009) found that, PICT significantly increased access to HCT to TB patients and TB suspects. More than 910 000 lives were saved as a result of TB/ HIV integration (Smart, 2012).Therefore, HCT campaign may contribute to saving lives of people due to integrated TB/HIV services in the public Health services with minimal referral made. The numbers of nurse initiated and management of ART (NiMART) trained nurses were more than 1,750 in 2011 and the number of ART initiating facilities increased from 490 in 2004 to about 2, 000 in 2011 in the country. Through this initiative, the number of patients on state sponsored ART increased 38 times from 47 000 in 2004 to 1,79 million in 2011. This made South Africa's ART programme the biggest of its kind in the world (SANAC, 2013)

Task shifting positively influences the ART acceleration but the more the tasks given to nurses, the longer the patient waiting time and the lower the nurse patient ratio (Georgeu, Colvin, Lewin, Fairall, Bachmann, Uebel, Zwarenstein and Bateman, 2011). This was supported by the results of the study condcuted by Fairall, Bachman, Lombard, Timmerman, Uebel (2012) that, HIV services could be increased

by task shifting. Assumptions may be made that the effect/s of task shifting should be monitored and reviewed to see if there is need for additonal staff in the facilities.

**Benefits of TB screening**

TB screening is an entry point to TB treatment and prophylaxis while HCT is an entry point to anti- retroviral treatment (ART) and this therefore means that TB screening and HCT are entry points to the management of TB/HIV. Smart (2012) indicated that TB screening assists in early identification and treatment of TB cases, including the INH prophylaxis treatment (IPT).According to Gebo and Justice (2009), older people may be at higher risk of progression than their younger counterparts, even if their CD4+ T-cell counts are the same. Hence, prophylaxis against opportunistic infections such as IPT may be provided at higher CD4+ T-cell counts in older people than in younger people.

**Implementation of HIV home testing**

Sharma, Sullivan and Khosropour (2011) indicated that many people accepted home HIV test. This is supported by Sekandi, Sempeera, Justin, Mugerwa, Asiimwe, Yin and Whalen (2011) that there is high acceptance of home-based HCT (home test) by people who were previously untested and unknown HIV-infected individuals in the community. It is acknowledged that the two studies had different targets such as location and gender. However, their findings provided an insight that home test could be implemented in the country as part of the HCT campaign and that, there are PHC re-engineering outreach teams who might render such service to reach as many people as possible for HCT services.

**Change of policy**

World Health Organisation (WHO) directed that TB and HIV services be integrated. This move will go a long way towards improving efficiencies when the two epidemics of HIV and TB managed under one roof. One of the key deliverables from the Health Sector in Negotiated Service Delivery Agreement (NSDA), is to combat HIV and AIDS

and reduce the burden of Tuberculosis with the aim of improving the lives of all South Africans. Based on the report above, the step taken by the South African government indicates that policy change and visionary leadership can drive the nation towards progressive benefits (SANAC, 2013). South Africa has created one of the most progressive and far-sighted policy and legislative environments in the world with specific reference to NSP 2012-16.

Msuya et al. (2008) reported that anti-retroviral treatment (ART) should be provided to all TB/HIV co-infected individuals, HIV positive pregnant women and children <5 years irrespective of their CD4 count. This is supported by Smart (2012) that, any person diagnosed with TB should receive HCT services, given the high rate and Health risks associated with co-infection. Anyone taking Tuberculosis treatment that tests HIV-positive should be placed on Cotrimoxazole prophylactic treatment (CPT) therapy and anti-retroviral treatment as soon as possible. The development and implementation of HCT campaign showed that leaders are aware of the influence of the HIV and Tuberculosis control programme on the lives of people hence integrated TB/HIV management guidelines.

## 2.8 VOLUNTARY COUNSELLING AND TESTING PRIOR TO HCT CAMPAIGN

Despite the fact that VCT was rendered in the public Health facilities in North West Province including Mahikeng Health Sub District (MHSD), the HIV testing uptake was low because clients had to volunteer for the service and the Health provider could not initiate the service to the client. Low HIV testing contributed to the increase in HIV transmission and HIV related deaths, and low ART initiation in South Africa (Mitchell, Nyakake, and Oling, 2007). It is evident that the above circumstance was influenced by the fact that communities were not aware of their HIV status hence sought medical help late. VCT services contributed to the knowledge and promotion of safer sexual practices among those who engage in risky sexual behaviours (He, 2009). This is supported by Wei (2007), that the use of VCT is related to Health status and high-risk sexual behaviours. Education about HIV and VCT improved, while levels of stigma

and discrimination reduced. The two studies agree that HIV testing education and knowledge improvement contributed to the reduction of risks of HIV transmission even though implemented on a lower scale.

Sherr (2007) stated that VCT was driven by knowledge and education rather than sexual risks while Matovu (2005) discovered that VCT acceptance was lower among persons with no prior HIV testing. This indicates that prior to the HCT campaign, education on sexual Health was not scaled up to more people. This provides an understanding on what issues to include in the HCT campaign such as empowering community about sexual risks. Jürgensen, Tuba, Fylkesnes and Blystad (2012), noted that VCT has been perceived as a diagnostic device and a gateway to treatment for the severely ill. Known the benefits concerning prevention and early treatment are outweighed by the perceived burden of knowing one's HIV status. This is supported by Rispel, and Metcalf (2009), who reported that the interpretation and understanding of VCT was influenced by stigma and memories of suffering and HIV related deaths. The above studies show the link between HCT and anti-retroviral treatment that people come to test if they know that they will receive proper treatment.

Nyabadza and Mukandire (2011) conducted a study in Uganda and found that high risk groups were underrepresented among recipients of VCT services. It was recommended that HIV services should reach the high risk individuals (e.g. men sex with men, commercial sex workers). VCT was implemented in South Africa before 2010 and more people at high risk were not necessarily reached because of the nature of the HIV service then, whereby people had to initiate or volunteer to receive HIV testing services.

## 2.9 IMPLEMENTATION OF HCT CAMPAIGN

The HCT campaign started in 2010 in South Africa and implementation was done at facilities and community level. This section of the study describes the implementation process of HCT programme. HCT campaign covers HIV test at clinics and in the

community. During HCT campaign people were screened for TB, tested for HIV and initiated on ART in line with World Health Organization (WHO) eligibility criteria.

### 2.9.1HCT campaign and tuberculosis screening

There is a link between HCT campaign and TB. HIV testing has increased steadily since the advent of the TB and HIV programmes. This was influenced by the introduction of rapid HIV testing kits, PCR testing for infants, employment of lay counsellors, wide-scale HCT campaigns, and targeted testing for TB patients/suspects (Garone, 2011). According to the National Strategic Plan for HIV, AIDS, STIs and TB , 2012-2016, about 70% of patients are co-infected with both HIV and TB (SANAC,2013). It is further reported that HIV is the main reason for failure to meet TB control targets in high HIV settings and TB is a major cause of death among people living with HIV.

According to Taylor (2009), the country is still far from having a response that is commensurate with the significance of the epidemic. The development of the integrated prevention and control for TB and HIV and leadership action in the era of HCT would show if the notion is true or otherwise.

### HIV campaign contribution to integration of TB/HIV

It is reported that about 1% of the South African population develops TB annually and TB cases are always on the rise (SANAC, 2013). This showed the need to scale up TB screening in the country through HCT campaign to identify and diagnose TB early to reduce deaths related to TB and HIV.

Effective implementation of integrated TB/HIV activities has helped to address the co-epidemic of HIV related TB. The rapid scale up of HIV testing through massive HIV testing campaign has led to many more South Africans knowing their HIV status and being screened for TB. This is supported by Treatment Action Campaign organisation (TAC) that, through HCT campaign more people have been screened for TB. The more the number of people screened for TB, the earlier the diagnosis which means

that more people would be treated eventually contributing to the reduction of new TB infections (TAC, 2011). This indicates that using the HCT campaign approach that South Africa undertook, the TB/HIV integration is evident because all clients who have undergone TB screening and found to be the TB suspects are referred for further clinical TB test for appropriate intervention.

**TB diagnosis as compared to HIV diagnosis**

Another area of focus is the improvement of TB diagnosis, care and prevention within the context of the HIV epidemic (Msuya et al., 2008). The Gene Xpert technology has been adopted in a bold move for the diagnosis of TB and MDR TB in South Africa. The screening technology for TB has been improved with the use of Gene Xpert as with the HIV screening to fast track access to treatment (Barnard, 2008). The same determination that was followed in the HIV arena is applied to TB intervention which is evidenced by the improved diagnosis for TB and the same effort dedicated to HIV is applied to TB so as to win the battle on TB and MDR-TB (Myer, 2011). This showed that the South African government approach of HCT campaign focused on integration of Health services such as TB and ART. TB screening using questionnaire was applied to all clients who received HCT in the facility.

During the HCT campaign, all clients who received HIV testing services were screened for TB excluding the known TB patients. This has resulted in the increase in TB cases found in the country. On the other hand, TB patients are screened for HIV to rule out co-infection so as to refer appropriately.

**HCT campaign and anti-retroviral treatment (ART)**

Bunnell (2006) reported that integrated anti-retroviral treatment and prevention programmes may reduce HIV transmission in Africa. According to Alistar (2014), offering ART on a wider scale was a good move because ART reduces the spread of new HIV infection by 96%. Since the South African government has employed the ART scale up programme, the impact of the programme would be evident from the HIV incidence and prevalence survey reports to come. Evian (2011) holds the view

that being HIV positive often means having to make major changes to one's sexual behaviour. This indicates that the changes in sexual behaviour shouldn't be dependent on one's HIV status; such as whether HIV positive or negative or with unknown HIV status, all are responsible for one's own Health. The HCT campaign seeks to increase access to information and education about safer sexual practices for the community to make informed decision on their reproductive Health. It may be assumed that access to HCT, adherence to ART and sexual behaviour change may reduce new HIV infections.

The new 2013 ART guidelines have since made many people eligible to ART in South Africa because the ART eligibility criteria has been changed from 350 CD4 count to 500 CD4 count (NDoH, 2013a). The number of ART initiating facilities increased to about 2,552 in 2012 (SANAC, 2013). This initiative is supported by Rochelle Walensky that "the prevention benefit of early ART cannot be overlooked and contributes also to improved life expectancy and decreased costs over time"(Karim, 2013). According to Cohen (2011), in the last 25 years, HIV testing has progressed and expanded from laboratory-based to rapid and easy point of care (POC) testing which is more accurate, faster and cheaper, and accessible for the resource-limited settings. Zachariah, Reid, Chaillet, Massaquoi, Schouten and Harries (2010) added that POC CD4 remains a vital entry point to accessing anti-retroviral treatment. Given the information about POC CD4, South Africa is not using this technology, instead, the courier services and SMS machines are used to fast track the CD4 count results though they are not available immediately.

According to Faal,Naidoo,Glencross, Venter and Osih (2011), the newly diagnosed HIV-positive patients do not return for their CD4 results and do not access further care because of delayed CD4 count results; therefore, providing immediate CD4 count results at HIV testing improves anti-retroviral treatment initiation. The linkage of rapid CD4 testing technology to HCT services increased anti-retroviral treatment initiation rates (Larson, Schnippel, Ndibongo, Xulu, Brennan and Long, 2011). It should be noted that in South Africa, there are some population groups that are initiated on ART when they test HIV positive, irrespective of the CD4 count, namely;

antenatal care clients, children < 5 years and TB/HIV co-infected patients as indicated in the ART guidelines 2013 (NDoH, 2013a).

## 2.10 OTHER APPROACHES TO REDUCE HIV TRANSMISSION

Even though the study focuses on ART initiation, HIV testing and TB screening, it is important to note that HIV new infection reduction depends also on other HIV prevention approaches employed during the HCT campaign hence it is discussed in this chapter. These approaches are discussed under HIV prevention approaches and ART as prevention. According to Health (2010), all clients who receive HCTservices should be given 100 pieces of condoms as a HCT package to further reduce HIV new infections in the country. Though condoms (male and female) are not 100% safe, they are proven to be highly effective at preventing HIV tranmission if used correctly and consistently(Karim, 2013). The national departmetn of Health reported that there is an increased number of condoms distributed in the South Africa by 2012 (SANAC, 2013). This indicates that community members have access to condoms to prevent the spread of HIV infections.

Medical male circumcision (MMC) is the surgical complete removal of the foreskin of the penis. This intervention is voluntary and is done to reduce men's risks of acquiring HIV through heterosexual vaginal sex (SANAC, 2013). The centre for HIV and AIDS Prevention Studies (Chaps) reported that MMC is a scientific proven and cost-effective HIV prevention apporach and more than 1 million medical male circumcision were performed in South Africa by September 2013 as part of National HIV prevention programme(Chaps, 2013). Van Lettow (2011) conducted a study in Malawi on PMTCT and found that improved maternal survival through ART initation may improve infant survival. In Kenya in 2011, Thomas (2011) found that maternal ART uptake for PMTCT is safe and feasible to prevent vertical HIV transmission. These studies indicate that effective PMTCT intervention prevents the vertival HIV transmission and may assist the South African government in achieving the set target of <2% HIV infection to infants at 6 weeks after birth and <5% for children at

18months of age. HCT campaign plays a vital role in increasing access to the PMTCT programme so that these results could be achieved.

The pre exposure prophylaxis (PrEP) programme provides antiretroviral treatment to uninfected clients if taken before being exposed to HI virus and reducesnew HIV transmissionby 60%.Post Exposure Prophylaxis (PEP)service is mainly focusing on sexual assault and needle prick injury to prevent the risk of HIV infection following such exposure. It provides 60% reduction/prevention of new HIV transmission(Karim, 2013). It may be assumed that if patients adhere to the treatment, chances are less to sero-convert to HIV hence the need to emphasise compliance to treatment during counselling.

**HCT campaign and HIV testing and infection reduction**

HCT is an entry point to a comprehensive continuum of care, when an individual has been tested for HIV; prevention can be reinforced and referral made to the appropriate treatment, care and support services. Kalichman (2003) showed that HCT approach is the cornerstone of HIV prevention in South Africa. Myer (2011) conducted a study and found that 8% of all new HIV infections in South Africa occur among men who have sex with men (MSM). The spread of HIV was influenced by high risk sexual practices and limited knowledge about HIV. Johnston (2010) found that men correctly understand that engaging in high risk sexual behaviours increases the likelihood of HIV infection. Through the use of HCT campaign, key populations groups such as men sex with men, commercial sex workers and gay communities would be reached and receive education and awareness on HIV prevention to reduce the risks.

Zablotska (2009) discovered that HIV prevalence of unprotected anal intercourse increased worldwide. Noar, Palmgreen, Chabot, Dobransky and Zimmerman (2009) found that gay men who engage in group sex were at high risk of HIV infection because they had sexual intercourse with partners without knowing the partners HIV status. This indicates that this group represents an important priority for HCT campaign hence the campaign targets key populations and the general community to

reduce the spread of HIV. Garcia (2014) conducted HIV prevention campaign in Washington, DC and found that the campaign has played a part in people receiving and acting on information to get HIV tested. According to Galvan (2014/12/27 -date retrieved), for the HIV test to increase, the HIV testing campaign conducted in California was "bundled" with other health screening service. Based on the findings of the two studies it may be assumed that for the HIV testing to improve, there is the need for a comprehensive health services package. The package may include education and information on HIV testing as well as other tests such as TB screening, blood pressure and diabetes screening.

There are several factors that contribute to the reduction of HIV new infections, however, it has been noted that the more the number of people who know their HIV status, the greater the chances of making informed decision and use safer sex practices such as correct and consistent use of condoms (Karim, 2013)The HIV prevention campaign in Washington DC contributed to a dramatic reduction in new HIV cases (Garcia, 2014). This is supported by the report folowing the study in USA that individuals' sexual network determines HIV risk (Avert, 2012). This shows that there were limited HCT campaigns hence the findings used though not comparable to the wide-spread campaign such as HCT in South Africa.According to Garcia(2014), the HIV prevention campaign in Washington, DC contributed to the increase in treatment access and enrollment for people living with HIV. According to Avert (2012), scaling up ART lowers the HIV transmission/infection in USA. Due to the HCT campaign approach South Africa undertook, HCT and ART are scaled up in the same campaign. Therefore, it would be envisaged that ART uptake would decrease HIV infection as more people access and utilize the HCT services.

## 2.11CHAPTER SUMMARY

This chapter provided a general review of literature on the effect of HCT campaign on HIV services. The review was done focusing on the influence of HIV campaign on ART initiation, HIV testing and TB screening, and other approaches that were used to reduce new HIV infections. Leadership plays a major role in the control and prevention of HIV in the country; hence review was also done on leadership in South Africa.

The next chapter discusses the methods used in carrying out this study. The research issues such as design, population, site and statistical analysis are presented.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 INTRODUCTION

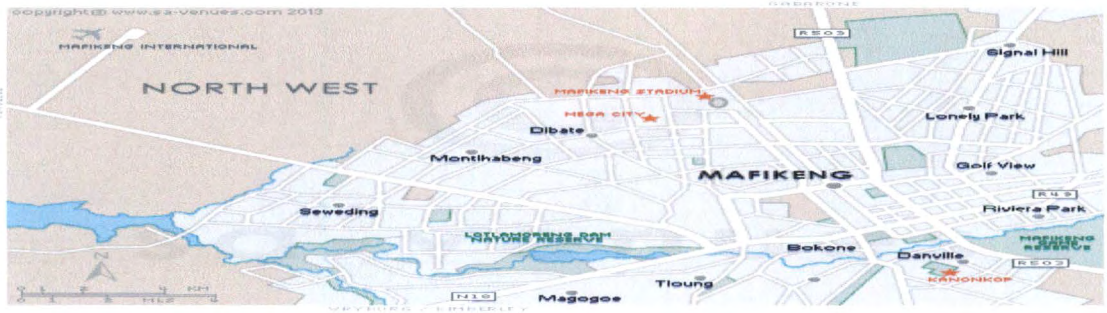
This chapter defines the research methodology used in this study to give answers to the research questions. This chapter also discusses the types of questions, study site, population and sample size, data handling and compliance with research ethics.

## 3.2 STUDY AREA

The study was done in Mahikeng Health Sub District (MHSD) in Mahikeng local Municipality in Ngaka Modiri Molema District. Mahikeng is the capital city of North West Province, South Africa and is a Setswana name meaning "place of rocks". It is considered the largest local municipality compared to the other four municipalities within Ngaka Modiri Molema District with an estimated population of 291,527 (Statistics South Africa., 2011).

The MHSD consists of 34 public Health facilities which comprise hospitals and primary Health care facilities (namely, community Health centres, mobile clinics and 8 hour fixed clinics).

**Figure1: Map of Mafikeng**




Source: http://www.google.co.za/imgres?imgurl

## 3.3 STUDY DESIGN

This research employed the quantitative cross sectional descriptive and comparative design using the retrospective data. The comparative method examines the difference between indicators over two different periods of before and after HCT campaign. The HCT campaing was introduced in 2010 and the data from 2008-2009 represent the before HCT period while 2010-2012 represents the after HCT period.Mouton and Prozesky (2005), explained a study design as a plan of how a researcher intends to conduct the study. This involves the planning for data collection and analysis to give meaning to research finding/s. Mahikeng Health Sub District stored data in both the paper based and the electronic (computer) system named District Health Information System (DHIS). There are other electronic information systems such as ETR.Net which captures TB/HIV data and Tier.Net system capturing the anti-retroviral treatment (ART) data. The data used in this study was sourced from DHIS.

The HCT implementers such as nurses and community counsellors compile the data using the paper based DHIS form and submit to the MHSD information office where the data is captured in the electronic DHIS. The data is verified at all levels of Health Care Service, for an example, the facility manager is responsible for verifying data before being sent to the next level and the sub district then gives feedback to the facilities before being sent to the District Information Office. Verification of data gives time for the facilities and different levels of functions to correct data where needed before the data could be used for decision making. Therefore, the data used in this stuty is considered valid and correct.

Quantitative analysis is a formal, objective, systematic process in which numerical data are utilised to obtain information about the world. It involves either identifying the characteristics of a phenomenon or exploring the possible correlation among two or more phenomena. It is intended to examine the situation as it is, without any alteration (Maxwell, 2005). Ritchie and Lewis (2003) assert that quantitative methods involve systematic evaluation of alternative action as a basis for choice between

them. Cresswell (2003) argues that some people avoid quantitative methods because of their inability to understand and interpret statistical or computational data and models. Grayson (2000) explains that these data and models they omit help to make difficult decisions easy in different environments. The data was sourced from District Health Information System (DHIS). The simplest definition is to say that quantitative analysis involves methods of data collection and analysis that are non-qualitative (Blanche, Duurheim and Painter, 2004).

## 3.4 DATA SOURCES

The secondary data was obtained from DHIS which is an aggregate of HCT indicators from 34 public Health facilities in Mahikeng Health Sub District. Secondary data refers to information that has been previously gathered by someone else for some other purpose and can be reused by the researcher which includes books, journal articles, and reports (Brynam, 2012). As explained in the study design, the verification process is embedded in the information flow policy of the Department of Health to improve the quality of data as the data is used for decision making (NDoH, 2008). This data is considered valid and verified to be used for the management and decision making purpose.

The data used in this study was divided into two, which is, before HCT (2008-2009) and after HCT (2010-2012). The data used was on monthly basis from 2008 -2012. It is acknowledged that modifications were made after the 2012. The data was at the interval level of measurement. Interval scales are numerical scales in which intervals have the same interpretation throughout (Lane, 2008). A variable is an empirically observable characteristic of some phenomenon that can take on more than one value or response category (Blanche, 2006).

Below are variables/indicators examined before and after HCT campaign which are aligned to the study objectives:

**Objective 1**: to determine differences in HCT indicators before and after HCT campaign; The indicators were (1) Antenatal client HIV 1st test, (2) Antenatal client

HIV 1st test positive, (3) HIV pre-test counselled, (4) Client tested for HIV - total,(5) adult male tested for HIV, (6) adult female tested for HIV and (7) child <15 years tested for HIV (8) Client tested positive for HIV – total,

**Objective 2:** to examine the differences in indicators of TB screening before and after HCT campaign: These indicators were (1) Client screened for TB and (2) HIV positive new patient with confirmed TB,

**Objective 3**: to compare the differences in antiretroviral treatment (ART) initiation before and after HCT campaign: (1) Total number of NEW patients initiated on ART (2) Antenatal client initiated on HAART, (3) number of child < 1 year initiated on ART, (4) Total number of patients initiated on ART child <15 years and (5) antenatal client eligible for HAART.

## 3.5 DATA ANALYSIS

According to Blanche(2006), the main objective of data analysis is to transform data into meaningful form to answer the research questions. This study used the Statistical Package for Social Science (SPSS) version 20.0 to analyse the secondary data used with specific reference to frequencies, standard deviation, mean and percentages to describe the data. The inferential statistics used in this study include t test, Pearson Correlation and One way Analysis of variance (ANOVA).This study used the t-test statistics to compare the differences in indicators before and after HCT.T-test is a statistical examination of two population means. The t-test looks at the t-statistic, t-distribution and degree of freedom to determine a p-value (probability) to establish whether the population means differ or to determine if two sets of data are significantly different from each other (Wegner, 2007).

In this study, Pearson Correlation was used to establish relationship between child < 1year initiated on ART and antenatal clients initiated on Highly Active ART (HAART) from 2010 to 2012. According to Ahlfeldt (2005), Pearson Correlation analysis was used to establish relationship between some of the indicators and to measure the strength of the linear association between two numeric random variables. It is also

important to note that a low correlation does not necessarily mean that the variables are unrelated but simply that, the relationship is poorly described by a straight line. Pearson's correlation does not imply a cause and effect relationship; it is an observed statistical association (Wegner, 2007).

Wegner (2007) explained that the interpretation of correlation coefficient takes on values between -1 – 0 +1 values which mean that between 0-1 values is considered positive, that is,0 – 0.3 (weak), 0.4 – 0.6 (moderate ) and 0.7 -1(Strong Positive) while 1- to 0 values means negative with similar rating as with the positive effect. This study therefore used the above interpretation.

**One way Analysis of variance (ANOVA)**was used to compare adult female, adult male and child <15 years as clients tested for HIV and clients tested positive for HIV after HCT campaign (AHCT). When testing for mean differences among more than two groups, an analysis of variance (ANOVA) is the appropriate test. The analysis of a study with only one variable is referred to as a one-way ANOVA and one with two variables is referred to as a two-way ANOVA (Wegner, 2007). This study focused on one way ANOVA which was used to test whether any of the HIV groups is statistically different from any other groups. Furthermore, Duncan multiple range test was used as a post-hoc test for the three categories of clients, that is, adult males, adult females and children AHCT (Blanche, Duurheim and Painter,2006).

## 3.6 ETHICAL CONSIDERATIONS PERTAINING TO THE STUDY

The study was conducted after the approval of the research proposal by the committee of the University of North West Mahikeng campus. Permission to conduct the study was requested and obtained from the Mahikeng Health Sub District manager for use of secondary data.

According to Goddard and Walker (2002), the researcher may delete all names and identifiers from the data and report only on the broad categories of responses to help ensure confidentiality. In this study, participants remain anonymous and the participation is entirely voluntary. It is considered unethical to use any personal details

of respondents in the report, which can identify the respondent. The participants were informed of the exact nature of the research.

This study used the secondary data which does not have identifiers but general study area, however, ethical issues were considered.

## 3.7 LIMITATIONS

Limitation of this study is that it was done in public Health facilities yet; HCT is rendered even in the private Health institutions and other government departments. As a result this may mean that there is a missing data in the study to reflect the true picture of HCT campaign.

There are two other limiting factors in this study; (1) unavailability or missing data in the District Health Information System (DHIS) due to late reporting from the public Health facilities and (2) that some facilities are not rendering the anti-retroviral treatment services hence the anti-retroviral treatment (ART) assessment was applicable to those facilities rendering the ART services.

## 3.8 CHAPTER SUMMARY

This chapter focused on the research design and methodology used in this study. It provided the reader with a comprehensive idea on how this study was conducted. The next chapter presents the study findings used in rejecting or accepting the raised questions.

# CHAPTER FOUR

# DATA DISCUSSION AND ANALYSIS

## 4.1 INTRODUCTION

This chapter presents the data discussion and analysis of data. For the purpose of the data discussion and analysis, the three specific objectives are outlined. The secondary data was used from DHIS from the Department of Health in the Mahikeng Health Sub District and illustrated through bar graphs and figures for discussion and tables for Statistical Package for Social Sciences (SPSS) and time series analysis.

There are two approaches used in the data discussion and analysis. The first part is the figures and tables used in relation to the three facets of HCT campaign, that is, HCT, TB screening and anti-retroviral treatment (ART) initiation. This is followed by the use of SPSS for Pearson's Correlations of the variables, t-test and One way analysis of variance. The data used to compare HCT was divided into 2 periods before and after the introduction of HCT. These are 2008 – 2009 (before HCT) and 2010 -2012(after HCT) and, for the correlations, the data is from 2010-2012.

Chapter 4 focused on the analysis and interpretation of the processed data. The analysis is grouped into data research under the sub-headings to give critical feedback. The analysis and interpretation of data in this chapter may eventually confirm or disprove the findings/results.

## 4.2 OBJECTIVE 1: TO DETERMINE THE DIFFERENCE IN HCT INDICATORS BEFORE AND AFTER HCT

Table 1below shows that there is a significant difference in the number of HIV pre-test counselled ($t = -7.302$, $p=<0.05$), the mean score of 4117.03 after HV Counselling and testing (AHCT) is greater than 1133.23 before HIV Counselling and Testing (BHCT), with the proportional increase after HCT at 56.83%. This might be due to the increased awareness and increase in the number of community counsellors in the

public health facilities rendering pre-test counselling during HCT campaign. This finding is supported by Mabota (2013) who found that the psychological well-being of counsellors plays a role in HCT where counsellor raise awareness during Health talks which contributes to the increase in number of clients receiving pre-test counselling.

Table 1 also indicates that there is a significant difference in the number of clients tested for HIV – total (t= -8.67, p= <0.05), the mean score of 597.85 after HCT (AHCT) is higher than 3842.90 before HCT (BHCT), with 73.07% proportional increase after HCT. The findings could be influenced by the awareness messages conducted during the HCT campaign and the quality of the pre-test counselling rendered by community counsellors and nurses in the Health facilities which empowered the community about the importance of HCT. It is presumed that the more the number of people pre-test counselled the more were the chances of people accepting HIV testing. This was discovered by Garone (2011) that PICT increases the HCT uptake and further supported by Fairall, Bachman, Lombard, Timmerman, Uebel (2012) that access to HIV services can be increased by PICT and task shifting. The findings also agree with Angotti, Bula, Gaydosh, Kimchi, Thornton and Yeatman (2009) who discovered that overwhelming majority of people in Malawi agreed to be tested for HIV through door to door HIV campaign.

Table 1 again indicates that there is a significant difference in the antenatal clients HIV 1$^{st}$ test (t= 2.60, p = <0.05), the mean score of 507.33 AHCT is more than 450.06 BHCT, with 5.98% increase in proportion after HCT. This could be due to the active involvement of men in the HCT campaign where community counsellors and nurses provided couple counselling and this might have played a major role. The findings support Semrau, Kuhn, Vwalika, Kasonde, Sinkala, Kankasa, Shutes, Aldrovandi and Thea (2005), who found that couple counselled pregnant women accepted HIV testing more easily than women who were counselled alone in Zambia.

Table 1 also shows that there is a significant difference in the two related indicators measuring HIV positive, that is, clients tested positive for HIV – total (t= -5.32, p=

<0.05), the mean score of 659.42 AHCT is greater than 300.76 BHCT, with proportional increase of 37.35% after HCT, and antenatal clients HIV 1st test positive (t = 5.61, p = <0.05), the mean score of 164.95 AHCT is more than 99.00 BHCT, with 24.99% proportional increase after HCT. This might be because of the raised HCT awareness and increased access to the anti-retroviral treatment to the community during the HCT campaign. This agrees with the findings by Obermeyer and Osborn (2006) that, services linked to HIV testing are key determinants of the utilization of services which include HIV testing. This finding is further supported by Morin, Khumalo-Sakutukwa, Charlebois, Routh, Fritz, Lane, Vaki and Coates, 2006), that the number of people testing positive for HIV increases during HIV testing in the community of Zimbabwe.

## 4.3 OBJECTIVE 2: TO EXAMINE THE DIFFERENCES IN INDICATORS OF TB SCREENING BEFORE AND AFTER HCT

Table 1 shows that there is a significant difference in the clients screened for TB (t = -10.41, p= <0.05), the mean score of 4118.06 AHCT is higher than 170.6667 BHCT, with the proportional increase after HCT at 92.04%. This might be due to the approach of HCT campaign where all clients who received pre-test counselling were screened for TB which is different from before HCT approach where only clients who tested positive were screened for TB. It is presumed that the greater the number of clients pre-test counselled, the more the number of clients screened for TB. This finding agrees with Ndwiga, Birungi, Undie, Weyenga and Sitienei (2013) who found that integrating TB screening with other services contributed to the increase in TB screening in Kenya.

In Table 1, there is also a significant difference in the HIV positive new patients with confirmed TB (t = -1.99, p = <0.05), the mean score of 66.16 AHCT is greater than 51.42 BHCT, with 12.52% proportional increase after HCT. This might be due to the awareness campaign and intensified case finding for TB done during the HCT campaign with the aim of reducing the spread of TB infection. Furthermore, the

findings could be related to the fact that community caregivers render effective home based Health services and TB/HIV integration in the public Health facilities in Mahikeng Local Municipality. Ndwiga et al. (2013) reported that lack of integration of TB in facilities implied a missed opportunity for screening and identifying patients with confirmed TB in Kenya. However, Kranzer, Afnan- Holmes, Tomlin,Golub, Shapiro, Schaap, Corbett, Lonnroth and Glynn (2003) reported that TB screening tends to find active TB cases earlier and with less severe disease in London.

## 4.4 OBJECTIVE 3: TO COMPARE THE DIFFERENCES IN ANTI-RETROVIRAL TREATMENT (ART) INITIATIONS BEFORE AND AFTER HCT

In Table 1, there is a significant difference in the total number of new patients initiated on ART ($t = -7.16$, $p=<0.05$), the mean score of 293.36 after HCT(AHCT) is more than 46.38 before HCT (BHCT), with proportional increase of 72.70% after HCT. This could be related to multiple factors put in place during the HCT campaign, that is, increased access to ART services improved quality of counselling at facilities through training of nurses and counsellors (Table 1) and revised ART initiation criterion where children below 5 years and TB/HIV co-infected clients are initiated on ART when tested HIV positive irrespective of the CD4 count. This finding agrees with Wolbers, Bucher, Furrer, Richenbach, Cavassini, Weber, Schmid, Hirschel and Battegay (2008:9) who reported that earlier HIV diagnosis is paramount so as to initiate ART earlier in Switzerland. Even though the number of patients initiated on ART increased after HCT using criterion of CD4 count of ≤350 cell/µl, Rutherford, Anglemyer, Easteerbrook, Horvath and Doherty (2013) reported in Malaysia that mortality risks and risks for AIDS were reduced in patients who were initiated on ART with CD4 count of ≤500 cell/µl . The CD4 count reported for Malaysia was higher than ≤350 cell/µl used in Department of Health Mahikeng sub district. This could be interpreted to mean that the Department of Health in Mahikeng sub district might have initiated more patients on ART if the CD4 count of ≤500 cell/µl was used as a criterion.

Table 1 shows that there is a significant difference in the total number of new patients initiated on ART child under 15 years (t= -2.66, p=0.05), the mean score of 12.54 AHCT is greater than 8.71 BHCT, with 18.02% proportional increase after HCT. This could be associated with the revised ART initiation criterion where children below 5 years are fast tracked on ART irrespective of CD4 count. It is important to note that prior to the HCT campaign, all clients who tested HIV positive were to have their blood sample taken for CD4 count and should have CD4 count of 350 before being initiated on ART hence the difference in AHCT. The other contributory factor might be that since ART initiation is rendered in all clinics in Mahikeng Local Municipality, it is less costly for parents/guardians to take children to the facilities for HIV test and ART initiation as compared to before HCT where ART was initiated in hospitals only. This finding supports Lucas, Peacock, Hounnou, Brattegaard, Koffi, Honde, Andoh, Bell and de Cock (1996) who reported that more children are living with HIV and are initiated on ART in Cote d'Ivoire. Lucas et al. (1996) concluded that HIV diesease in children is an important Health problem in Africa. Therefore, this finding presumes that HCT campaign is a vehicle in addressing the above metioned problem by increasing ART initiation among children.

In Table1, there is a significant difference in the number of antenatal clients eligible for HAART (t= -4.99, p= <0.05), the mean score of 42.48 for AHCT is greater than 19.33 for BHCT, with 37.45% proportional increase AHCT. This shows that a number of antenatal clients eligible for Highly Active Anti-retroviral Treatment (HAART) increased after the HCT campaign. This might be due to the revised ART initiation criterion for pregnant women, that is, CD4 count <350 cell/µl (AHCT) from CD4 count 200 cell/µl (BHCT) and the integration of ART into antenatal care service strengthened during HCT. According to Stinson, Jennings and Myer (2013), integrating ART into routine antenatal care services and change in ART initiation criterion from ≤200 cell/µl to ≤350 cell/µl has contributed to the increased number of pregnant women eligible for ART in Cape Town. This finding also supports Granich, Crowley, Vitoria, Smyth, Kahn, Bennett, Lo, Souteyrand and Williams (2010) who found that lowering the viral load through HAART initiation is essential to interrupt HIV

transmission in Switzerlan, US, UK and South Africa. This could be interpreted to mean that HCT campaign in the Department of Health Mahikeng sub district was well planned to respond to the issues indicated above through integration of services and increasing messages about HAART.

In Table 1 there is a significant difference in the antenatal client initiated on HAART (t= -6.64, p=<0.05), the mean score of 34.81 AHCT is greater than 7.42 BHCT, with the proportional increase after HCT at 64.83%. This indicator is influenced by other indicators discussed above such as antenatal visit before 20 weeks or later, the CD4 count results, HIV testing and positive for HIV. However, this finding could be associated with HIV management by trained nurses who initiated antenatal care patients in HAART and the multimedia campaign done during the HCT campaign from which people were informed about PMTCT and the benefits of HAART to increase life expectancy. Smith, Ho, Langston, Mankani, Shivshanker and Perera (2013) revealed that training improved Healthcare providers' knowledge and confidence resulting in compassionate care and this contributed to more clients accessing Health care services in Kenya, Jordan, Demcratic Republic of Congo and Ethopia. This finding also is supported by Arinola and Adekunjo (2012) who reported that, awareness is effective in spreading information to increase access to HIV services such as ART initiation in Ogbomoso, Oyo State, Nigeria. This might be interpreted to mean that the approach used during HCT campaign considered the benefit of lifelong ART, in that, HAART decreases the risk of HIV transmission and increases life expectancy as reported by Brocklehurst and Volmink (2002) and further supported by Granich et al. (2010) that, HAART serves as treatment and as prevention of HIV from mother to child.

**TABLE 1: t-test statistics comparing indicators before and after HIV Counselling and Testing (HCT)**

| | Period | N | Mean | SD | SEM | t | df | p | Total $M_b+M_a$ | Proportion of total | Proportion increase |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antenatal clients eligible for HAART | BHCT | 21 | 19.33 | 13.48 | 2.94 | -4.99 | 52 | .00 | 61.82 | 31.27 | 37.45 |
| | AHCT | 33 | 42.48 | 20.54 | 3.57 | | | | | 68.73 | |
| Antenatal clients HIV 1st test | BHCT | 21 | 450.06 | 63.53 | 11.06 | 2.60 | 33 | .01 | 957.39 | 47.01 | 5.98 |
| | AHCT | 33 | 507.33 | 87.30 | 19.05 | | | | | 52.99 | |
| Antenatal clients HIV 1st test positive | BHCT | 21 | 99.00 | 33.51 | 5.83 | 5.61 | 33 | .00 | 263.95 | 37.51 | 24.99 |
| | AHCT | 33 | 164.95 | 46.72 | 10.19 | | | | | 62.49 | |
| HIV pre-test counselled | BHCT | 21 | 1133.23 | 520.80 | 113.64 | -7.30 | 37 | .00 | 5250.27 | 21.58 | 56.83 |
| | AHCT | 33 | 4117.03 | 2254.61 | 392.47 | | | | | 78.42 | |
| Clients tested for HIV – total | BHCT | 21 | 597.85 | 454.29 | 99.13 | -8.67 | 36 | .00 | 4440.77 | 13.46 | 73.07 |
| | AHCT | 33 | 3842.90 | 2071.07 | 360.52 | | | | | 86.54 | |
| Clients tested positive for HIV – total | BHCT | 21 | 300.76 | 67.73 | 14.78 | -5.32 | 35 | .00 | 960.19 | 31.32 | 37.35 |
| | AHCT | 33 | 659.42 | 377.71 | 65.75 | | | | | 68.68 | |
| Clients screened for TB | BHCT | 21 | 170.66 | 102.15 | 22.29 | -10.41 | 32 | .00 | 4288.73 | 3.98 | 92.04 |
| | AHCT | 33 | 4118.06 | 2174.28 | 378.49 | | | | | 96.02 | |
| HIV positive new patients with confirmed TB | BHCT | 21 | 51.42 | 16.71 | 3.64 | -1.99 | 47 | .05 | 117.58 | 43.74 | 12.52 |
| | AHCT | 33 | 66.15 | 36.88 | 6.42 | | | | | 56.26 | |
| Antenatal clients initiated on HAART | BHCT | 21 | 7.42 | 10.18 | 2.22 | -6.64 | 50 | .00 | 42.25 | 17.58 | 64.83 |
| | AHCT | 33 | 34.81 | 19.95 | 3.47 | | | | | 82.42 | |
| Total number of new patients initiated on ART by end of the month | BHCT | 21 | 46.38 | 38.69 | 8.44 | -7.16 | 35 | .00 | 339.74 | 13.65 | 72.70 |
| | AHCT | 33 | 293.36 | 191.93 | 33.41 | | | | | 86.35 | |
| Total number of new patients initiated on ART child under 15 years -new | BHCT | 21 | 8.71 | 2.93 | .64 | -2.66 | 45 | .01 | 21.26 | 40.99 | 18.02 |
| | AHCT | 33 | 12.54 | 7.38 | 1.28 | | | | | 59.01 | |

Total Mb + Ma= total Mean Before HCT plus Mean After HCT

Proportion of total = Proportion of Mean before and After HCT

Proportion increase= Proportion increase (difference increase from Mean After - Mean Before HCT)

**SEM** = Standard Error Mean, **SD** = Standard Deviation

The results in Table 2 below show a significant difference among adult male, adult female and children <15 years who tested for HIV (f = 100.33, p=<0.05). To further identify the difference, Duncan multiple range test was used as a post hoc test for the three categories of clients. The results show that more adult female clients (2816.43) tested for HIV than adult male clients (1153.86) and children < 15 years (250.23). This implies that more women are responsive to HCT campaign than adult males and children <15 years. This finding agrees with Venkatesh, Madiba, de Bruyn, Lurie, Coates and Gray (2011) who found that most women tested for HIV in Soweto, South Africa. This could be interpreted to mean that more women have access to information and Health care services than other categories such as men. Therefore, more focus should be given to the male clients so as to increase access to HIV services and this could be done by utilising the existing community caregivers to conduct men talks, men imbizo.

Table 2 below shows a significant difference among adult male, adult female and children <15 years who tested positive for HIV (f = 59.78, p=<0.05). The Duncan multiple range test shows that more adult female clients (450.73) tested positive for HIV than adult male clients (217.16) and children <15 years (19.36). This presumes that among women who tested for HIV, more of them are living with the HIV than adult male clients and children <15 years. This could be associated with the risks that women are faced with, such as relationship and behavioural risks. This might also presume that the dialogues and awareness conducted during the HCT campaign contributed to the identification of women who were living with HIV. The finding agrees with Stinson, Jennings and Myer (2013) who found that there is the highest proportion of women testing HIV positive during HIV counselling and testing in Cape town. The study further supports Dunkle, Jewkes, Brown, Gray, McIntyre and Harlow (2004) who doscovered that women who tested positive for HIV were found to be in violent, controlling and abusive sexual relationships in Soweto.

**Table 2: Analysis of variance comparing adult female, adult male and child <15 years for clients tested for HIV and clients tested positive for HIV after HCT (AHCT)**

| ANOVA | | | | | | | Duncan Multiple Range Test | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Sum of Squares | df | Mean Square | F | Sig. | Group | N | Mean |
| Client tested for HIV | Between Groups | 101660635.62 | 2 | 50830317.81 | 100.33 | .00 | Children | 30 | 250.23[a] |
| | Within Groups | 44075294.20 | 87 | 506612.57 | | | Male | 30 | 1153.86[b] |
| | Total | 145735929.82 | 89 | | | | Female | 30 | 2816.43[c] |
| Client tested HIV positive | Between Groups | 2797554.28 | 2 | 1398777.14 | 59.78 | .00 | Children | 30 | 19.36[a] |
| | Within Groups | 2035483.00 | 87 | 23396.356 | | | Male | 30 | 217.16[b] |
| | Total | 4833037.28 | 89 | | | | Female | 30 | 450.73[c] |

Table 3below shows that the Pearson Correlation between child < 1 year initiated on anti-retroviral treatment (ART) and antenatal clients initiated on ART is -0.504 and could be interpreted that there is strong negative relationship. This might mean that the prevention of mother to child transmission (PMTCT) service is not effective since there are children who tested positive for HIV. This finding suggests that much needs to be done to fast track women on ART initiation for the effective PMTCT. In the public Health facilities in Mahikeng Local Municipality, Health education was rendered to mothers about infants testing for HIV and the benefit of ART and this might have contributed to the increase in the number of infants initiated on ART. This is supported by Penazzato, Prendergast, Tierney, Cotton and Gibb (2012) who found that ART reduces morbidity and mortality among infants. This inverse relationship could also mean that if more adult women are initiated on ART less children < 1 year could be initiated on ART. This is in agreement with Granich et al. (2010) that, antiretroviral treatment prevent vertical HIV transmission from mother to child.

However, it is presumed that even though there is an increase in ART initiation to infants, it might be that during HCT, infants who were already positive for HIV were identified by community caregivers during the home visits as an intervention to the reduction of infant morbidity and mortality.

**Table 3: Pearson Correlation for Child < 1 year initiated on anti-retroviral treatment (ART) and antenatal clients initiated on ART, 2010-2012**

| Pearson Correlations | | | |
|---|---|---|---|
| | | Child < 1 year initiated on ART | Women initiated on ART |
| Child < 1 year initiated on ART | Pearson Correlation | 1 | -.504* |
| | Sig. (2-tailed) | | .012 |
| | N | 24 | 24 |
| Antenatal clients initiated on ART | Pearson Correlation | -.504* | 1 |
| | Sig. (2-tailed) | .012 | |
| | N | 24 | 24 |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | |

## 4.5 CHAPTER SUMMARY

In this chapter, the detailed results of the research using secondary data analysis in Mahikeng Health Sub District have been provided. Discussions and analysis have also been presented using tables, figures and data from secondary sources.

The analysis of the results has shown that there is a link between the literature reviewed and the secondary data used in this study. The study used quantitative approach to describe and analyse the findings on the effect of HCT campaign in the implementation of HIV services. The study has shown that HCT campaign has a positive effect on the implementation of HIV services such as ART initiation and TB screening.

The next chapter consolidates all the research work conducted and it consists of the major findings, conclusion and recommendations.

# CHAPTER FIVE

# CONCLUSION AND RECOMMENDATION

## 5.1 INTRODUCTION

This chapter presents the study under three sections, namely, summary, conclusion and recommendations. The summary re-established the objectives, the statement of problem and the methodological procedure followed in the execution of the study. The major findings of the study were highlighted showing key results while the conclusion drawn from the findings highlighted the key milestones that the study has achieved. Recommendations were based on the findings and conclusion of the study.

## 5.2 SUMMARY

The general aim of this study was to determine the effect of HIV Counselling and Testing (HCT) campaign on the implementation of HIV services in Mahikeng Health Sub District, North West Province, South Africa. The specific objectives of the study were: to determine the differences in HCT indicators before and after HCT; to examine the differences in indicators of TB screening before and after HCT and to compare the differences in anti-retroviral treatment (ART) initiations before and after HCT. The HCT campaign was introduced in 2010 in the Department of Health in Mahikeng Health Sub District (MHSD). The purpose of the campaign was to encourage people to know their HIV status and to access counselling and treatment.

This study attempts to examine indicators such as antenatal clients HIV 1st test, antenatal clients HIV 1st test positive, HIV pre-test counselled, clients tested for HIV, clients tested positive for HIV, clients screened for TB, HIV positive new patients with confirmed TB, antenatal client initiated on HAART, Total number of new patients initiated on ART and Total number of new patients initiated on ART child under 15 years, before and after the introduction of the HCT campaign.

The study was done in the Mahikeng Health Sub District in Ngaka Modiri Molema District Municipality, North West Province. The MHSD consists of 34 Public Health facilities which comprise hospitals, Community Health Centres and 8 hour clinics.

This research used the comparative and descriptive study methods. The comparative method used the data from 2008 to 2012 using before and after the HCT campaign. The descriptive methods used data from 2010 – 2012 period aimed at examining the three facets of the HCT campaign. Secondary data was obtained from DHI system which is an aggregate of HCT indicators from 34 Public Health Facilities in Mahikeng Health Sub District. This study used the Statistical Package for Social Science (SPSS) version 20.0 to analyse the secondary data collected with specific reference to frequencies, standard deviation and mean to describe the data. Furthermore, the study used the t-test statistics to compare indicators before and after HCT. Pearson correlation was used to establish relationship between some of the indicators and One way analysis of variance with Duncan Multiple range as a post hoc test was used to compare the indicators in terms of different categories of the population.

## 5.3 MAJOR FINDINGS

The major findings were reported based on the objectives of the study.

**Objective 1:** From the analysis of the data, findings from this study objective on determining the difference in HCT indicators before and after HCT show that there is a significant difference in clients HIV pre-test counselled for HIV ($t = -7.302$, $p=<0.05$); the mean score of 4117.03 after HIV Counselling and testing after (HCT) is greater than 1133.23 before HIV Counselling and Testing before (HCT). Also there is a significant difference in the number of clients tested for HIV – total ($t= -8.67$, $p= <0.05$) and the mean score of 597.85 after HCT (AHCT) is higher than 3842.90 before HCT (BHCT).

The findings also indicate that there is a significant difference in the antenatal clients HIV 1$^{st}$ test ($t= 2.60$, $p = <0.05$); the mean score of 507.33 after HCT is more than 450.06 before HCT. In terms of clients who tested positive for HIV, there is a

significant difference (t= -5.32, p= <0.05) with the mean score of 659.42 AHCT greater than 300.76 BHCT, and antenatal clients HIV 1st test positive increased by 19.1% (t = 5.61, p = <0.05) and the mean score of 164.95 after HCT is more than 99.00 before HCT.

The proportional increase after HCT for the number of HIV pre-test counselled, number of client tested for HIV, antenatal clients HIV 1st test and clients tested positive for HIV were 56.8%, 73.0%, 5.9% and 37.3% respectively.

**Objective 2:** From the analysis of the data, findings from the study show that with respect to the objective on determining the differences in indicators of TB screening before and after HCT, a significant difference exists in terms of clients screened for TB (t = -10.41, p= <0.05), the mean score of 4118.06 AHCT is also higher than 170.6667 BHCT. Similarly, there is a significant difference in HIV positive new patients with confirmed TB (t = -1.99, p = <0.05), the mean score of 66.16 AHCT is greater than 51.42 BHCT. That shows a proportional increase of 92.04% and 12.52% for clients screened for TB and HIV positive new patients with confirmed TB respectively.

**Objective 3:** The comparison of the differences in indicators of anti-retroviral treatment (ART) initiations before and after HCT shows that, there is a significant difference in total number of new patients initiated on ART (t = -7.16, p=<0.05), the mean score of 293.36 after HCT(AHCT) is more than 46.38 before HCT (BHCT).

Furthermore, there is a significant difference in the total number of new patients initiated on ART child under 15 years (t= -2.66, p=0.05), the mean score of 12.54 AHCT is greater than 8.71 BHCT.

There is also a significant difference in the number of antenatal clients eligible for HAART (t= -4.99, p= <0.05), the mean score of 42.48 for AHCT is greater than 19.33 for BHCT.

The proportional increase in AHCT of the total number of new patients initiated on ART is 72.70%, the total number of new patients initiated on ART child <15 years is 18.02% and antenatal client eligible for HAART is 37.45%.

Finally, there is a significant difference in the antenatal clients initiated on HAART (t= -6.64, p=<0.05), the mean score of 34.81 after HCT is greater than 7.42 before HCT with the proportional increase of 64.83% after HCT.

The results from the One Way Analysis of variance show a significant difference among adult male, adult female and children <15 years who tested for HIV (F = 100.33, p=<0.05). Similarly, there is a significant difference among adult male, adult female and children <15 years who tested positive for HIV (f = 59.78, p=<0.05). The analysis of the Pearson Correlation between child < 1 year initiated on anti-retroviral treatment (ART) and antenatal clients initiated on ART is -0.504 which implies a strong negative relationship.

## 5.4 CONCLUSION

The introduction of the HCT has led to the increase in the number of people HIV pre-test counselled and this may have attributed to the awareness and the increase of the number of clients tested for HIV.

The effect of HCT isan increase in the number of clients screened for TB and HIV positive new patients with confirmed TB. The influence of HCT on the initiation of ART shows an increase in the total number of new patients initiated on ART, the total number of new patients initiated on ART child <15 years and the number of antenatal clients eligible for HAART.

The response to HCT was higher among adult female clients who tested for HIV than adult male and children <15 years. The number of adult female who tested positive for HIV was higher than adult male and children <15 years. There is an inverse relationship between child < 1 year initiated on anti-retroviral treatment (ART) and antenatal client initiated on ART.

The most prominent proportional increase after HCT was recorded for clients screened for TB (92.6%), clients tested for HIV (73.07%), the total number of patients initiated in ART (72.70%), antenatal clients initiated on HAART (64.83%) and HIV pre-test counselled (56.83%). However, low proportional changes were recorded by antenatal clients 1st test (5.98%).

## 5.5 RECOMMENDATIONS

The HCT campaign should be re-launched and marketed so as to revive the resources and social mobilisation to the community to reach the Health outcomes and to also emphasise the HIV retest after 12 weeks following HIV negative results.

The home based HIV testing programme should be implemented to further increase the HCT access to the community in order to reduce new HIV infections and to promote safer sexual practices.

TB screening should be done not only for patients who tested positive for HIV but to all clients who visit the public Health facility so as to strengthen TB/HIV integration.

Antiretroviral treatment (ART) policy should be reviewed with specific reference to ART initiation criterion of ≤500cell/µl to increase life expectancy as recommended by World Health Organisation (WHO).

There is need for funding the procurement of point of care CD4 count equipment to improve anti-retroviral treatment initiation to newly diagnosed HIV-positive patients rather than using the laboratory test which takes longer to give CD4 count results to the facilities.

Further study should be conducted to evaluate the retention of patients on anti-retroviral treatment (ART).

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