

**FACTORS INFLUENCING LOW ACCESS TO
ANTIRETROVIRALS FOR PREGNANT WOMEN LIVING
WITH HIV IN GHANA TO REDUCE MOTHER TO CHILD
TRANSMISSION OF HIV**

BY

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MOTHER TO CHILD TRANSMISSION OF HIV**

**A thesis submitted in partial fulfillment of the requirement for the
degree of master of Public Health**

By

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DECLARATION: Where other people's work has been used (either from a printed source, internet or any other source), this has been carefully acknowledged and referenced in accordance with departmental requirements.

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Signature:



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DEDICATION

HERTY; MY WIFE
JOEL AND JESSE; MY SONS
JUDITH; MY SISTER

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To the Almighty God who has seen me through all difficult moments of my life and has been the source of my strength, I say, Glory be to His Name.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal clinic
ART	Antiretroviral therapy
ARVs	Antiretrovirals
AZT	Zidovudine
BSS	Behavioural surveillance survey
CBO	Community Based Organizations
CHAG	Christian Health Association of Ghana
CHPS	Community-Based Health Planning and Services
CSDH	Commission on Social Determinants of Health
CT	Counselling and Testing
DHA	District Health Administration
DHMIS	District Health Management information System
DMHIS	District Mutual Health Insurance Scheme
FBO	Faith Based Organizations
GAC	Ghana AIDS Commission
GDHS	Ghana Demographic and Health Survey
GDP	Gross Domestic Product
GFATM	Global Fund to fight AIDS, and Malaria
GHS	Ghana Health Service
GPRS	Ghana Poverty Reduction Strategy
GSS	Ghana Statistical Service
HAART	Highly Active Antiretroviral therapy
HBCT	Home based counselling and testing
HCT	HIV counselling and testing
HIC	High Income Countries
HIV	Human Immuno-deficiency Virus
HRH	Human Resource for Health
HSS	HIV Sentinel Survey
ICRW	International center for research on women
IRIN	Integrated regional information network
LMIC	Low and Middle Income Countries
MCH	Maternal and Child Health
MMoH	Ministry of Health of Malawi
MoH	Ministry of Health
MoWCA	Ministry of Women and Children's Affairs
MTCT	Mother to child transmission

NAC	National AIDS Council
NACP	National AIDS and STIs Control Programme
NDCP	National Development Commission programme
3TC	Lamivudine
NDPC	National Development Planning Commission
NGO	Non Governmental Organization
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
NSF	National Strategic Framework
NVP	Nevirapine
PLHIV	People living with HIV
PMTCT	Prevention of mother to child transmission
PWLHIV	Pregnant Women Living with HIV
RHMIS	Regional Health Management Information service
SRH	Sexual and reproductive Health
STI	Sexually transmitted infections
TBA	Traditional birth attendant
UN	United Nations
UNAIDS	Joint United United Nations Programme on AIDS
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children Fund
USAID	United State Agency for International Development
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

ABSTRACT

Background: Ghana started its PMTCT programme in 2001. Almost 10 years after its inception, an estimated 20% (2,500) of all infants born to pregnant women living with HIV in 2009 were infected with HIV through MTCT. The challenge faced by the PMTCT programme in its quest to eliminate MTCT of HIV is attributed in part to low access to ARVs for eligible pregnant women.

Objective: To identify and analyze factors influencing low access to antiretrovirals for pregnant women living with HIV to reduce mother to child transmission and help make recommendations to facilitate access to antiretrovirals.

Methodology: Review and analysis of literature on PMTCT from Ghana and other low to middle income countries.

Findings: Though ANC attendance is high (97%), there is low uptake of HCT (40% of ANC registrants). Out of the eligible pregnant women living with HIV in 2009, 28% had access to ARVs for PMTCT. The study identified the following as influencing factors to low uptake of HCT and ARVs: (A) Low availability (including resources) of PMTCT sites, (B) Inadequate financial and geographic accessibility to PMTCT services, (C) Low quality and acceptability of services (D) Policies and guideline challenges, (E) Individual and household characteristics.

Conclusions: Improving availability of and accessibility to PMTCT services (increase service points, shifting task, and equitable distribution of services) and reviewing guideline on the use of CD4 cell count to assess ARV need have the potential to improve uptake of HCT and ARVs

Key words: PMTCT, access, uptake, ARVs, HCT, Ghana

Word count: 11,318

INTRODUCTION

Globally, Mother to Child Transmission (MTCT) of HIV is identified as an important but preventable cause of HIV transmission. Globally, 2.7 million new HIV infections occurred in 2010 of which 390,000 were children under 15 years (UNICEF, 2010). More than 90% of the children infected with HIV are through MTCT, accounting for about 13 % of the global new infections (UNICEF, 2009). These transmissions are occurring at a time when effective interventions are available to prevent them or reduce them to the barest minimum (Coovadia, 2008).

In 2001, the United Nations General Assembly Special Session (UNGASS) on HIV committed member nations to reduce the 2000 level of MTCT by 20% by 2005 and 50% reduction by 2010. This could be realized when prevention of mother to child transmission (PMTCT) of HIV services are accessible to 80% of all pregnant women (UN, 2001). To demonstrate its commitment to reduce MTCT of HIV, Ghana successfully piloted the PMTCT programme in 2 hospitals in the Eastern in December 2001. The outcome from this phase led to roll-out of PMTCT to all the 10 regions in the country. At the end of 2009, 29% (793) of ANC facilities in the country had become functioning PMTCT sites (GAC et al, 2010; NACP, 2009).

In the high income countries (HIC) where effective PMTCT services are accessible for all pregnant women, MTCT of HIV is below 2% for non breastfeeding and below 5% for breastfeeding mothers living with HIV (Coovadia, 2008). In low and middle income countries (LMIC), 35% of pregnant women received HIV testing and 53% of pregnant women living with HIV (PWLHIV) received antiretrovirals (ARVs) for PMTCT (WHO et al 2010). This poor access can be attributed to accessibility (geographic and financial), availability and acceptability of PMTCT services. These factors are also influenced by policy and micro environment as well as individual and household characteristics (Peters et al, 2008).

Ghana still faces a lot of challenges in its quest to eliminate MTCT of HIV after 10 years of PMTCT implementation. In 2009, an estimated 20% of infants born to PWLHIV were infected with HIV. This could have been averted or reduced drastically with PMTCT interventions. The challenge in protecting these infants from HIV infection is attributed in part to low access to effective ARVs for PMTCT (GAC, 2010).

I chose this thesis topic due to my personal interest in maternal and child health related issues. As a pharmacist working at district level and involved in HIV prevention, treatment, care and support activities, I regularly see infants and young children who are infected with HIV. Available records always indicate the mothers of these children did not access ARVs for PMTCT with unknown reasons. The outcome of the study will help understand

factors influencing the low ARV access and develop evidence-informed interventions to bridge this gap. The findings will also be shared with PMTCT programme managers in Ghana. This may influence the design of interventions which would address the service gaps and contribute to the reduction of MTCT of HIV.

The content of the thesis is structured into seven chapters. Chapter 1 gives the background information about Ghana. Chapter 2 is on problem statement, methodology and analytical framework while chapter 3 outlines the PMTCT services in Ghana. Factors influencing access to ARV for PWLHIV in Ghana are reviewed in chapter 4. Chapter 5 brings out evidence of interventions which have improved ARV access for PMTCT in other LMIC. Discussion of the findings is in chapter 6 while chapter 7 is on conclusion and recommendation.

CHAPTER 1: BACKGROUND

1.1 Country profile

Ghana is located on the west coast of Africa and shares borders with Togo on the east, Burkina Faso on the north and northwest and Côte D'Ivoire on the west. To the south is the Gulf of Guinea, which forms a coastline of 560 kilometres long. The surface area of Ghana is 238,540km² (GSS et al, 2009). The country is divided into 10 administrative Regions which are further divided into 170 districts to constitute the local government structure. Table 1.1 shows the population characteristics of Ghana.

Figure 1.1 Map of Ghana showing international boundaries and the administrative regions

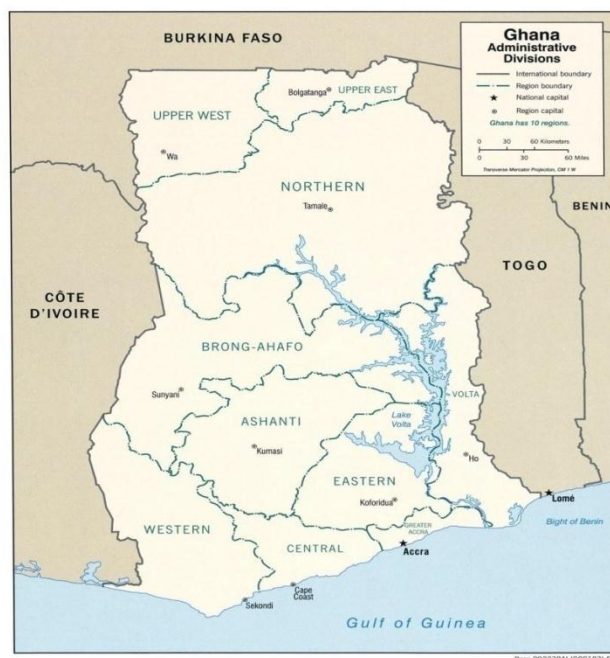


Table 1.1: Population characteristics of Ghana

Estimated population	24,222,431
Population density	101.50 per km ²
Sex composition	Males: 11,801,661 (48.72%) Female: 12,421,770 (51.28%)
Age structure	Less than 15 years: 36.5% Less than 5 years: 15%
Life expectancy at birth	64 years (53years in 1990) (UNICEF, 2011a)

Source: (GSS, 2011)

1.2 Health situation and Health system in Ghana

Like other developing countries, there is fast epidemiological transition in Ghana which has brought about a double burden of disease. Though Ghana still battles diseases such as malaria, tuberculosis, HIV and AIDS as a major Public Health burden, the death rates from non communicable diseases such as cancers, cardiovascular diseases, diabetes, sickle cell diseases and

chronic respiratory diseases are higher and responsible for half of all deaths (MoH, 2011a).

Ghana has made gains in its major health indicators. But this is not enough to achieve the health related Millennium Development goals (MDGs) (NDPC, 2010). The Ministry of Health is the steward of the entire health sector and responsible for the health needs of the population and. Its functions include; coordination of planning, resource mobilization, budget execution, human resource development and monitoring and evaluation of the sector's performance (GAC et al, 2010).

In 2004, the government introduced National health Insurance Scheme (NHIS) as a social protection policy to improve access to healthcare. This is regulated by National Health insurance Authority (NHIA) and decentralized into District Mutual Health Insurance Schemes (DMHIS). The scheme covers over 95% of services at the various health facilities (NHIA, 2003).

The Ghana Health Service (GHS) is the statutory body set up to ensure improved access to quality health service at all levels with support from developing partners like Global Fund, UNICEF and others in partnership with other agencies under the Ministry of Health (MoH) like the Christian Health Association of Ghana (CHAG) who predominantly serve the rural and deprived communities (GAC et al, 2010). The health system has 5 levels of care (GHS, 2005). These are;

1. Community-based Health Planning and services (CHPS) who provide basic care within the communities
2. Health Centers operate at the sub-districts and serve as referral points for the CHPS
3. District Hospitals who provide comprehensive non specialized hospital care and receive referrals from the health centers
4. Regional Hospitals, provide specialized care and serve and referral point from the district
5. Tertiary facilities who serve at training and teaching facilities for the health professionals.

There is shortage of all critical cadres of health staff in the country. The health worker to population ratio in 2009 was estimated at 1 medical doctor to 11,929 and 1 nurse to 971 (MoH, 2011b). According to the MOH/HRDD (2008), over 14,000 staff has been added to the health workforce since 1997. At the end of 2008, there were 43,000 health cadres but this is only about half of the HRH needs. Table 1.2 gives the situation of selected health cadres in Ghana.

There is inequitable distribution of the available health workforce among the 10 regions in the country. 75% of medical doctors and 49% of nurses are located in Greater Accra, Ashanti and Volta regions while the 3 Northern regions are grossly under resourced. Allocation of staff is also skewed towards the urban centers while the rural communities lack the essential staff to deliver effective services such as PMTCT (MoH/HRDD, 2008).

Table 1.2: Available and required HRH for selected cadres in Ghana, 2008

Category of staff	Available number	Required number	Gap (%)
Medical officers	2,026	4,658	56.50
Pharmacists	1,550	2,726	43.14
Midwives	2,810	6,183	54.56
Nurses	7,310	20,007	63.50
Community Health Nurses	3,246	8,993	64.00
Medical Assistants	430	1,242	65.80
Allied Health Professionals	588	2,500	76.50

Source: MoH/HRDD, 2008

1.3 Maternal, neonatal and child health in Ghana

The annual births in the country for 2010 were 770,000 out of which 18% are attributed to adolescents (UNICEF, 2010a). Immunization coverage in Ghana is high. At least 96% of children are vaccinated with BCG, DPT and Polio. It is also reported that 79% of children between 1-2 years are fully immunized while 1% never received immunization (MOH, 2010). The key maternal and child health indicators are summarized in table 1.3 below.

Table 1.3: Maternal and child health indicators

Indicator	Performance
Infant mortality per 1000	50*
Under five mortality per 1000	64*
Maternal Mortality Ratio per 100,000 live births	350*
Fertility rate (total births per woman)	4.0 ¹
Percentage ANC utilization (at least once)	97
Percentage ANC utilization (at least 4 times)	78
% supervised delivery	57
% exclusive breast feeding	63 ²

Sources: *UNICEF, 2011, ^{1&2}GSS et al, 2009, GHS/RCH, 2009, MoH, 2010

1.4 Global perspective of HIV and AIDS

HIV and AIDS have assumed a global dimension with 34 million people living with the virus of which 50% are women (WHO et al, 2011). In 2010, it was estimated that 3.4 million children were living with HIV. 2.7 million new infections occurred of which 390,000 were children under 15 years. About 90% of children with HIV acquired the infection vertically through their HIV positive mothers (WHO, 2011).

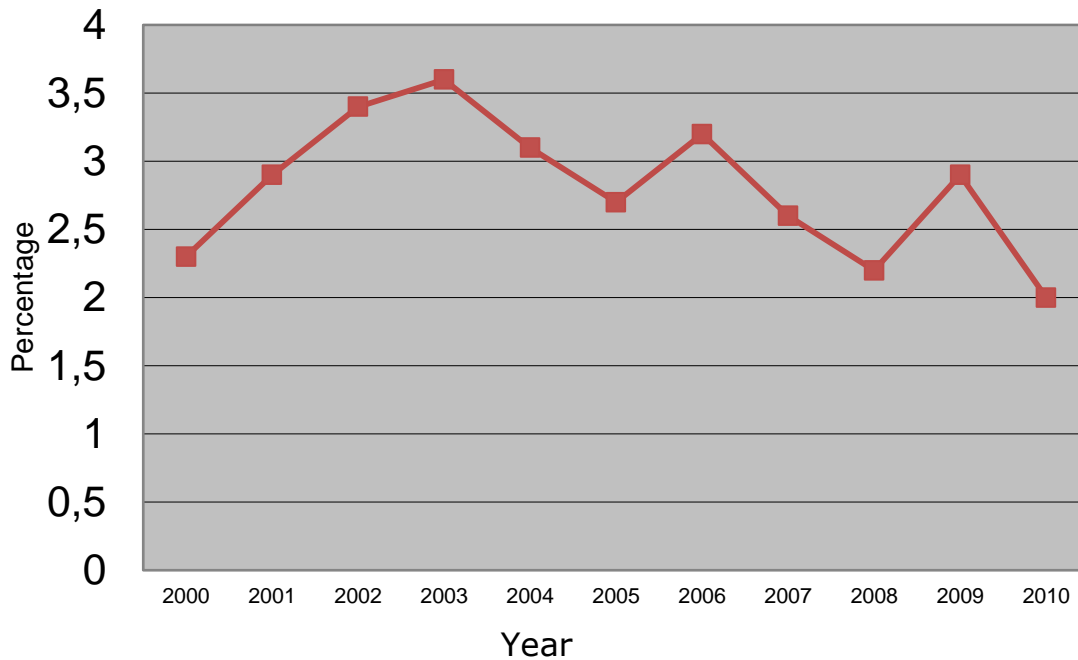
In 2003, the United Nations adopted recommendations from the Inter-Agency Task Team on prevention of mother-to-child transmission of HIV for the implementation of a comprehensive four-pronged strategic approach that comprises of: i) primary prevention of HIV among women of reproductive age; ii) prevention of unintended pregnancies among women living with HIV; iii) prevention of HIV transmission from PWLHIV to their babies; and iv) provision of appropriate treatment, care and support to mothers living with HIV and their families (WHO and UNICEF, 2007).

The global HIV burden is not limited to incidence and morbidity but mortality as well. In 2010, it was estimated that 1.8 million died of HIV related diseases in the world. About 67% of the people living with HIV (PLHIV) are in Sub-Saharan Africa. The same region accounted for 75% of the HIV related mortalities in 2010 (UNAIDS, 2010).

1.5 HIV and AIDS situation Ghana

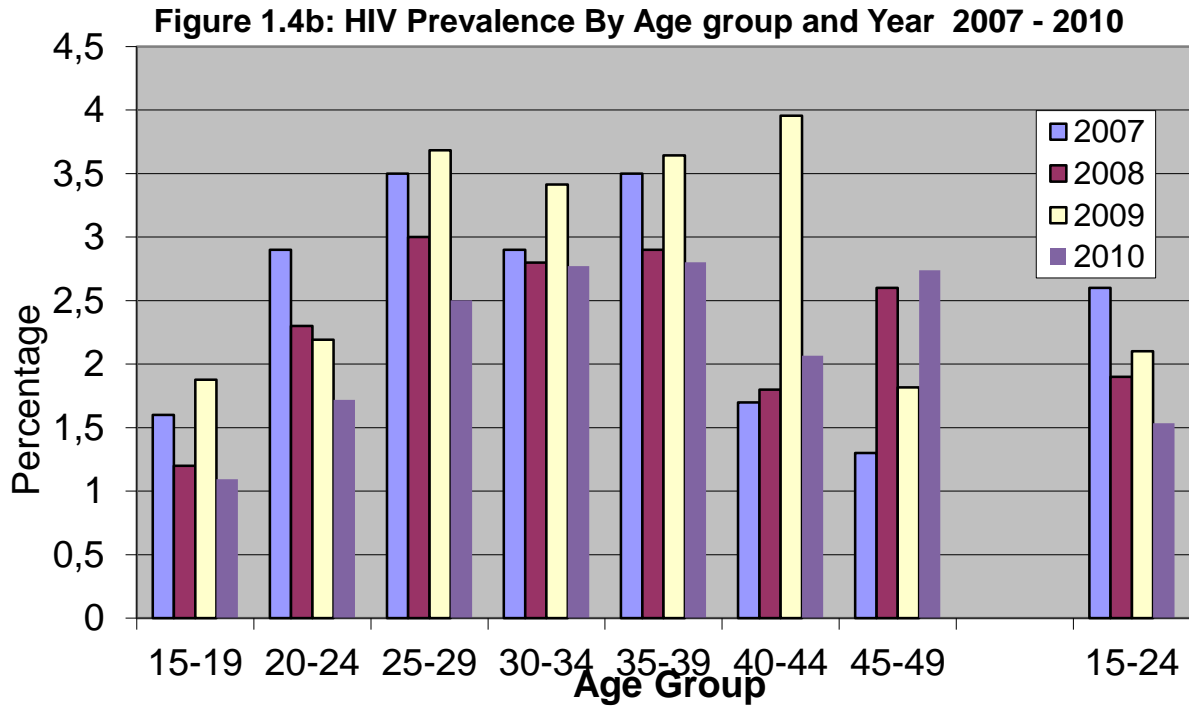
Ghana diagnosed its first case of Acquired Immunodeficiency Syndrome (AIDS) in March 1986 (MoH, 2000) with a total of 42 cases reported at the end of 1986. At the end on 2000, an estimated 350,000 persons were living with HIV (NACP/MoH, 2001). The peak of the infection was recorded in 2003 (3.6%) (NACP, 2004). Figure 1.4a shows the ANC HIV Sentinel Survey (HSS) prevalence from 2000-2010

Figure 1.4a: Median ANC HSS prevalence 2000-2010



Source: NACP, 2011

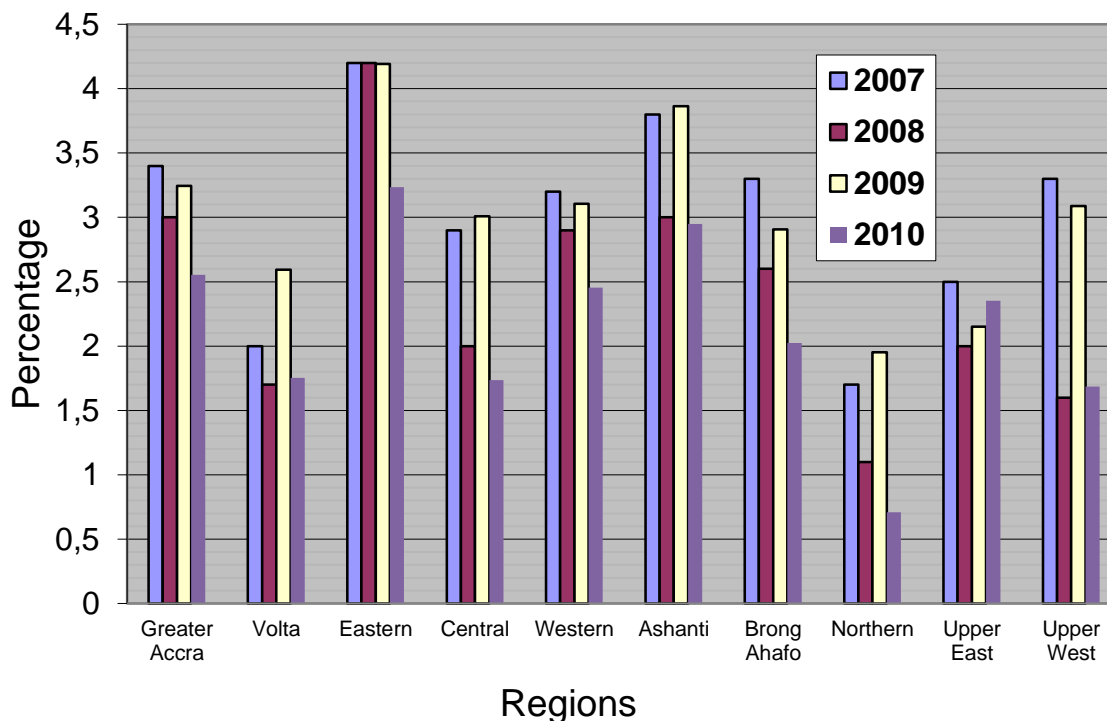
At the end of total of 221,941 persons were living with HIV (PLHIV) out of which 126,735 were female while 95,206 were males. There are age and regional disparities in the prevalence between 2007 and 2010 as shown in figures 1.4b and 1.4c respectively (NACP, 2011).



Source: NACP, 2011

Regionally, the Eastern region of Ghana has consistently recorded the highest while the Northern region recorded the lowest prevalence figures between 2007 and 2010 (NACP, 2011).

Figure 1.4c: Regional HIV prevalence of Ghana (2007-2010)



Currently, Ghana is experiencing multiple epidemics with a generalized low prevalence and high prevalence among sub-populations. The identified key populations and their prevalence were Female Sex Workers: 25.1%, men who have sex with men: 25.3% and prisoners: 5.9% (GAC, 2010).

Heterosexual intercourse is the major route of HIV transmission in Ghana accounting for between 70% and 80% of total incidence of HIV infection. Vertical transmission from mother to child is responsible for 15% of the disease burden. Geographically, the disease burden is higher in the urban communities than in the rural communities (GAC, 2010).

1.6. National response

Ghana’s response to HIV and AIDS started with the formation of the National technical committee in 1985, a year before the first case of AIDS was recorded. This committee developed a short-term plan to prevent and control AIDS. It then formed the National AIDS/STIs Control Programme (NACP) under the MoH in 1987; a year after the first case was detected (Dzokoto, 2008). The NACP developed a medium term plan and was responsible for all HIV and AIDS related issues in the country (GAC, 2010). In 2000, the government realized that HIV and AIDS are not just health issues but also development issues and needed a multi-sectorial approach. The Ghana AIDS Commission was then formed as a statutory supra ministerial body with the mandate to “formulate a national comprehensive

HIV/AIDS policy, provide high level advocacy, effective leadership, direct and co-ordinate the national response to HIV and AIDS response” (GAC, 2010).

GAC developed and implemented the National Strategic frameworks I and II (NSF I&II) (2001-2005 and 2006-2010) and took a more comprehensive approach to HIV prevention and treatment (USAID, 2010). The focus of HIV activities has been on; (GAC, 2005)

- Prevention of new infections
- Treatment, care and support the infected and affected
- Mitigate impacts on individuals, communities and health system

Due to multi-sectorial involvement, the Ministry of Education introduced youth counselling, peer education and HIV and AIDS life skills into the teacher training curriculum. The Ministry of Employment and Social Welfare is also scaling up work place HIV and AIDS policy to reduce the spread of infection (GAC, 2010).

In 2004, the GAC developed the National AIDS Policy which served as the reference document for the development of all strategic plans and interventions (USAID, 2010).

To improve access to services, HIV prevention, treatment, care and support services are either free or highly subsidized. Treatment for opportunistic infections (OIs) is paid for under the Nation Health insurance Scheme. All counselling, testing and PMTCT services are not paid for by users. This is to encourage all pregnant women to get tested and be provided with short course antiretrovirals for PMTCT (GAC, 2009). There is also a nation-wide ongoing ‘know your status campaign where HIV counselling and testing services are sent to the door steps of the people with the aim of getting more PLHIV enrolled into care (GAC, 2010). Realizing the contribution of MTCT to the epidemic, the GAC has developed PMTCT scale up plan 2011-2015 to reduce MTCT of HIV (GAC et al, 2010).

Funding for HIV and AIDS activities is mainly donor driven while the government also commits 15% of the health budget to HIV related programmes. All the ministries having a budget line for HIV programmes (AFRODAD, 2009; USAID, 2010).

Due to donors’ failure to fulfill their commitment, AIDS’ spending reduced from 52.5 million USD in 2007 to 38.5 million USD in 2008 (Asante and Fenny, 2008). This impacted negatively on scaling up of interventions like PMTCT in the country (AFRODAD, 2009).

CHAPTER 2: PROBLEM STATEMENT, OBJECTIVES AND METHODOLOGY

2.1 Problem statement

Vertical transmission of HIV from mother to child in Ghana is second to heterosexual intercourse in the mode of HIV transmission. It is responsible for 15% of the total HIV infection in the country (GAC, 2010). HIV is responsible for 14% of all under five deaths (GHS, 2008). In 2010, estimated 3,476 children were infected with HIV and 2,581 children died of HIV and AIDS related causes (NACP, 2011). MTCT of HIV is therefore an important public health concern in Ghana (GAC, 2012).

In Ghana, as at the end of 2009, it was estimated that 13,000 pregnant women were living with HIV (WHO et al, 2010). This represents about 5.4% of the total number of PLHIV (NACP, 2010). Without any intervention, between 25% and 40% of children born to these mothers would be infected with HIV (WHO, 2007). Without interventions, over 50% of these children will die before they reach two years of their lives (Roger, et al, 2010). This contributes to the already high infant and child mortality rates in the country.

Attendance of antenatal care is the point of entry into the flow of PMTCT service provisions. PMTCT services ideally, as per guideline should include;

- Routine offer of HIV counselling and testing for all pregnant women
- Provision of long course combination antiretroviral therapy to eligible pregnant women
- Safer delivery processes including elective surgical interventions
- Safer infant feeding options (WHO, 2009)

It is reported that, 97% of pregnant women utilized antenatal care services (ANC) at least once while 78% had at least four visits in 2009 (GHS/RCH, 2009). A study by Opoku (2009) found the percentage of ANC registrants as 88.4% while in Kwahu North district the registrants was 59% (DHA, 2009). However, this high antenatal coverage does not reflect in the number of pregnant women who are tested and receive test result for HIV and number of eligible PWLHIV who received ARVs to reduce mother to child transmission (MTCT) (GAC, 2010). In 2009, 953,635 pregnant women attended antenatal clinic (ANC) of which 40% (381,874) tested and received test result as part of ANC/PMTCT services (GHS/RCH, 2010). 28% of the PWLHIV received antiretrovirals to reduce MTCT (UNICEF, 2010a).

There is a positive correlation between maternal HIV viral load and the risk of perinatal transmission of HIV. Low viral load is achieved through the use of effective antiretrovirals. This also exerts protective effect by providing both pre exposure and post exposure prophylaxis for the foetus.

Antiretrovirals are therefore critical in reducing HIV transmission in all the three stages (intrauterine, intrapartum and post partum through breast feeding) (Burr, 2011).

The low ARV coverage contributes significantly to maternal mortality as about 20% of all maternal deaths are linked to HIV (UNAIDS, 2010). ARVs help to preserve and restore the immune function therefore prolonging and improving quality of life (Burr, 2011). In Ghana, HIV and AIDS has been identified as one of the indirect causes of maternal mortality (Mensah, 2012). More than 20% of all maternal deaths are attributed to HIV, malaria and anaemia (Otinkorang, 2012).

The WHO (2007) has attributed low level of antiretroviral access for PMTCT internationally to a many factor including health system and individual characteristics. There is however limited research in Ghana to identify factors influencing low ARV coverage.

2.2 Objectives of the study

2.2.1. General objective

To identify and analyze factors influencing low access to antiretroviral for pregnant women living with HIV to reduce mother to child transmission and make recommendations in order to facilitate access to antiretroviral for eligible pregnant women.

2.2.2. Specific objectives

1. To explore and analyze factors influencing uptake of HIV testing serve among pregnant women who utilize ANC.
2. To explore and analyze factors influencing uptake of antiretrovirals among eligible ANC clients for PMTCT.
3. To identify and discuss evidence of interventions from other low and middle income countries (LMIC) that have effectively improved access to antiretrovirals for pregnant women living with HIV for PMTCT
4. To make recommendations to improve ARV access for pregnant women living with HIV to reduce mother to child transmission.

2.2. Justification of the study

MTCT of HIV is destroying the survival of children. These infections could be reduced through access to ARVs for pregnant women with HIV. Access can

be improved if barriers to access are identified through research and responded to. A study to identify the influencing factors of low access to ARVs and to explore interventions for improvement is therefore crucial.

The findings from this study will contribute to knowledge to help address MTCT of HIV. The findings will be made available to the managers of National AIDS/STIs Control Programme, Reproductive and Child Health (RCH) unit of the Ghana Health Services (GHS) and other organizations involved in promoting maternal and child health. It may also guide design and implementation of intervention aimed at improving access to ARV for pregnant women with HIV to reduce MTCT.

2.3 METHODOLOGY

2.3.1 Literature review

The study is a review and analysis of literature. It is based on available articles, reports, journals, and grey literature written which have relations with the set objectives. Pub med, Scopus, Google scholar and Google are some of the search engines used. The websites of WHO, Vrije Universiteit, KIT library and UNICEF were utilized. Other sources of information include Ministry of Health (MoH), Ghana AIDS Commission and Ghana Health Service websites.

Search strategy

The searches were done using key words like; Ghana, HIV and AIDS, PMTCT, MTCT, ARVs, access, availability, ANC, gender, socio-cultural, counselling testing, policy, knowledge, awareness, acceptability, test result, English only, from 2000.

2.3.2 Limitations of the study

1. The national data on PMTCT services did not provide information on percentage of antenatal registrants who were offered HIV counselling and testing services
2. Routine data on antiretroviral access at the regional level could not be accessed. It was therefore impossible to compare the performances of the various regions.
3. Limited information on factors influencing ARV access due to limited research on PMTCT programme in Ghana

2.5. Conceptual framework

To help analyze the information gathered from the study, the Anderson behavioral module (1968) and Peters et al module (2008) for access were reviewed. Peters module centered on availability, geographic accessibility, financial accessibility and acceptability as supply and demand element which interact with policies and macro-environment and individual characteristics (Peters et al, 2008). The study opted for Peters module as seen in figure 2.1 below because is more relevant to the study findings. Peters defines access as getting in contact with the service and using the service. He explained the dimensions which have both demand and supply factors as follows; Geographic accessibility is defined is the distance the user has to travel from his location to the location of the service

Availability is the presence of the various services which meet the needs of users. It also includes the right mix of resources needed to provide the services.

Financial accessibility is ability and willingness of users to pay for service in relation to its price and cost without negative economic consequences.

Acceptability is the responsiveness of the services provided to the socio-cultural norms and individual expectations.

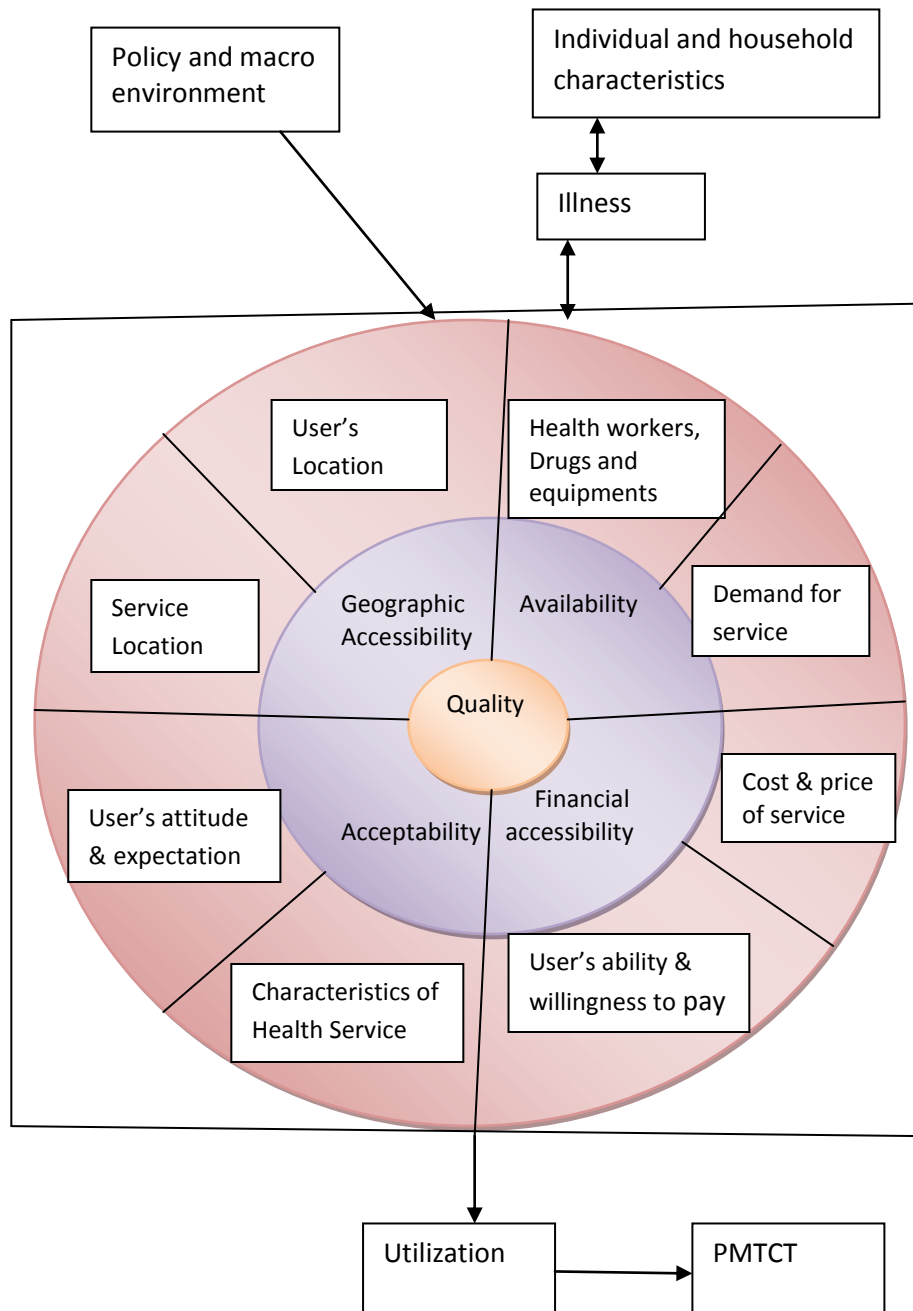
Policy and macro-environment are the health system and the various guidelines which determine service delivery. This also includes donor influences on the programme.

Individual and household characteristics have to do with the socio-economic position, vulnerability and the health status.

Illness is perceived need which leads to interaction between individual and policy environment on one side with main dimensions of success.

Individual and household characteristics are defined by the author to include age, marital status, educational status, knowledge and awareness, gender, socio-cultural issues, stigma and attitude towards service.

Figure 2.1 Conceptual framework to assess access to health service



Source: Peters et al (2008) with adaptation

CHAPTER 3: PMTCT PROGRAMME AND SERVICES IN GHANA

3.1 History of PMTCT programme in Ghana

PMTCT was introduced in the latter years of 1990s to protect infants born to mothers infected with HIV from acquiring the infection (UNICEF, 2007). In June 2001, during the 26th UNGASS, member countries declared their commitment to reduce the 2000 level of MTCT by 20% the proportion of infants infected with HIV by 2005 and 50% by 2010 (UN, 2001).

Ghana piloted its first intervention against MTCT of HIV in December 2001 at Atua and St Martin de Porres hospitals, in Lower Manya Krobo district, Eastern Region. These facilities were chosen due to the high HIV prevalence in the district (GAC, 2010). This was officially launched in 2002 (Ayifah, 2011). Between 2002 and 2004, the Ministry of Health partnered Family Health International to build staff capacity in areas of communication strategies, counselling and clinical skills in the two piloted hospitals and the two teaching hospitals. Atua and St. Martin's hospitals started administering ARV prophylaxis for PMTCT in 2003 while the two teaching hospitals, Komfo Anokye and Korle-Bu started in 2004 (FHI, 2006).

The aim of piloting the programme was to determine the possibility for providing ARVs for PWLHIV to reduce MTCT of HIV (FHI, 2006). Following the successful piloting in these four hospitals, the programme was rolled-out to all the 10 regions in 2005 (GAC, 2010).

3.2 Programme organization Funding and Management

3.2.1 Organization

The PMTCT programme is organized through the existing health system at all levels of healthcare delivery in the country (GAC et al, 2010). Though the Ministry of Health is promoting integration of the programme into the Maternal and Child Health (MCH) services, this is yet to achieve full scale. An estimated 29% of the 2,734 ANC facilities offer PMTCT services to pregnant women (GHS/RCH, 2009).

3.2.2 Funding

PMTCT and all HIV related programmes are mainly funded by Global Fund who is responsible for about 85% of the total NACP budget. This funding has been in the areas of infrastructural development, provision of equipments, ARVs and other logistics as well as training. The GAC is the principal recipient of funding from Global Fund. The funds are disbursed through the MoH to the NACP, GHS and Faith-based Organizations, Non Governmental

Organizations and Community Based Organizations working on HIV for implementation of programmes (Atum, et al, 2011). Other funding agencies are UNICEF and PEPFAR.

All logistics for PMTCT including ARVs and HIV rapid test kits are supplied through integrated logistics management of the existing supply chain system of the MoH (Atum et al, 2011).

3.2.3 Management

The programme depends on the available Human Resource for Health to deliver PMTCT services. The technical personnel at the NACP train staff at the regional level and equip them with the requisite skills to enable the conduct training for staff at the district and sub-district levels. Between 2005 and 2009, 3,734 existing healthcare workers were given training to provide PMTCT services as part of their regular duties (Atum et al, 2011).

Governance, monitoring and evaluation functions of PMTCT programme have parallel structures to the existing national health system. The NACP is very reluctant to integrate its information system. The reluctance is due to lack of trust for the existing structure and the importance of key indicator data required by Global Fund and other donors. Though this system has the advantage of ensuring timely reporting, it undermines the integration of data with the established district information management system and affects decision making at the district level (Atum et al, 2011).

3.3. Approaches, services and Strategies to increase coverage

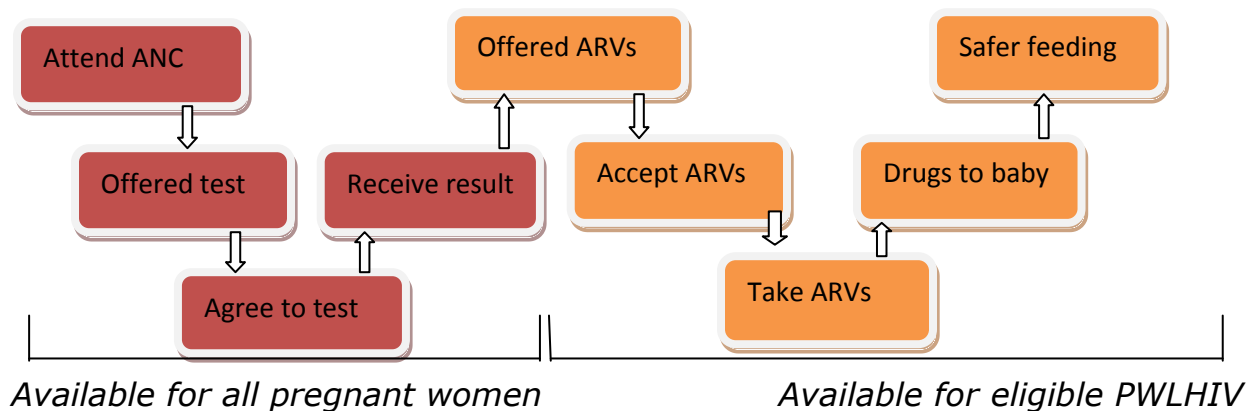
3.3.1 Approach

Ghana's approach to PMTCT is based on the four PMTCT prongs model developed in 2001 by the United Nations and recommended by the WHO (2002). These four prongs are well stated in the PMTCT Guideline of Ghana. However, the Ghana PMTCT programme focuses on prongs 3 and 4. These are prevention of HIV transmission from women infected with HIV to their infants and Provision of treatment, care and support to women infected with HIV, their infants and their families respectively (GAC and MOH, 2008). The focus of this thesis is on prong 3 and refers to PMTCT services as those offered under prongs 3 and 4.

The first prong; primary prevention of HIV infection is under the broader NSF with a multi-sectorial involvement while the second prong is under the Reproductive and Child Health Unit of the MoH (GAC and MoH, 2008).

Services for the two prongs which are the focus of Ghana's PMTCT programme are provided in selected health facilities in the country. ANC attendance is the entry point of entry point for these two prongs and offered at all levels of the healthcare ladder. Only 29% (793) of the 2,734 ANC facilities are recognized as PMTCT sites. In order to increase PMTCT access, there has been a scale up of if PMTCT sites from 135 to 793 between 2005 and 2009 (GAC, 2010). There is also a change from opt-in¹ approach to opt-out² to increase test acceptance, build capacity of staff, refurbish infrastructure and procure essential supplies (GAC et al, 2010).

Figure 3.3.1 PMTCT service flow chart in Ghana



3.3.2 Services

The programme provides four core services at the PMTCT sites (GAC and MoH, 2008) which are:

1. HIV counselling and testing (HCT), mostly provider-initiated
2. Provision of Antiretrovirals for eligible clients
3. Counselling on and support for infant feeding
4. Supportive counselling and care for all HIV positive pregnant women after delivery

HIV counselling and testing are routinely offered to pregnant women ANC as part of the baseline assessment. This test is repeated in the third trimester if the initial test was negative. Pregnant women are provided with basic information prior to testing which include the benefits of the test and the option to refuse the test as enshrined in the national PMTCT policy. These are done on the principles of strict confidentiality and informed concern (MoH, 2008).

¹ Clients initiated HIV counselling and testing process

² Providers initiated the HCT and offer the liberty to clients to refuse it

3.4. Programme performance

Scale up of PMTCT services in Ghana started in 2005. Since then, there has been gradual increase in the number of clients who are receiving various PMTCT services. Table 3.4 below illustrates the PMTCT performance from 2005 to 2009.

Table 3.4 PMTCT services performance in Ghana (2005-2009)

Indicator	2005	2006	2007	2008	2009
Number of PMTCT sites	135	176	407	532	793
New ANC registrants	759,882 895,411		838,219	876,032	953,635
No of clients counselled and tested	20,296 (2.7%)	36,155 (4.0%)	104,045 (12.4%)	257,466 (29.4%)	381,874 (40.0%)
No of clients positive	748	1,378	3,298	6,021	6,634
Percentage of Clients positive	3.70	3.80	3.20	2.30	1.70
Percentage of HIV infected pregnant women who received antiretrovirals to reduce the risk of mother to child transmission	0.45	6.30	12.60	38.10	28.00

GHS/RCH 2009 Annual Report, 2010; UNICEF, 2010

From Table 3.1, there is an increase in percentage of antenatal registrants who received HIV counselling and testing from 2.7% in 2005 to 40% in 2009. It is believed that, increased number of PMTCT sites, built health staff capacity, infrastructural development and improved logistics supply and awareness among clients could be responsible for the increase (GAC, 2010).

In general there is reduction in service utilization at every stage of the PMTCT service ladder.

CHAPTER 4: FACTORS INFLUENCING LOW ACCESS TO ARVs FOR PREGNANT WOMEN LIVING WITH HIV IN GHANA TO REDUCE MOTHER TO CHILD TRANSMISSION OF HIV

4.1 Concept of access

An important health system function is to contribute to the prevention of ill health and its associated mortality (WHO, 2000). The ability of a health system to contribute to the well being, improve health and prevent mortality is determined on the extent to which people who are in need of health intervention receive and use it (WHO, 2005;).

Access, according to Campbell et al (2000) is the availability of health service intervention at the disposal of the population who need it without any barrier. On the part of WHO (2009b), access to health intervention is the extent to which the need and expectations of a target population are met.

In this study, access in relation to antiretroviral drugs is defined as the extent to which eligible pregnant women are provided with antiretroviral with the purpose to reduce infecting their babies with HIV (author).

Many dimensions or factors have been identified to influence access to health service interventions. The factors are related to demand for and supply of the health service interventions (Gulliford et al, 2002; Peters et al, 2008). On supply side, the intervention should be available in sufficient quantity to cover the target population, be of the desired quality and be able to produce the expected health outcome. Access also depends on to the extent to which services meet the expectations of the user. It also depends on financial accessibility; which is the price of the intervention, cost of transport and opportunity costs as well as the ability and willingness of the target population to pay (CSDH, 2008).

Distance and travel time between user location and service location, the extent to which the service provision meets the socio-cultural norms and other community and household issues also influence access (Peters et al, 2008).

4.2 Behaviour of PMTCT/Health services

In Ghana provision of PMTCT services begins with antenatal attendance by pregnant women. The protocol for ANC attendance is monthly visit from conception to 28th week of gestation. This is followed by a bi-weekly visit up to 36 weeks then weekly visit till delivery. Experts' opinion is that, four visits for pregnancies without complication are adequate and this is in line with the

WHO recommendation. The schedule for the four visits should be at 10th, 20th, 30th and 36th week of gestation (Overbosch et al, 2003).

At the ANC, health professionals routinely conduct health education on various pregnancy related issues including HIV, MTCT and the use of drugs to reduce MTCT of HIV. The number of ANC visits by a pregnant woman has positive association with level of exposure to PMTCT information and benefits which influence behaviour towards PMTCT services (Nyarko et al, 2006).

PMTCT services are delivered through the existing ANC though there are many ANC facilities which do not offer PMTCT services. Women visiting for ANC, delivery or post partum care are supposed to be offered routine HIV counselling and testing. The benefit of the test as a determinant for provision of ARVs for PWLHIV to protect the babies from HIV infection needs to be emphasized. Clients are also informed of the liberty to opt out without affecting the quality of their care (GAC and MoH, 2008). Annex III

4.3 Policy issues

Many policies and guidelines (including ART and PMTCT) have been developed to help prevention of HIV infection and to improve case management. HIV programmes are medical doctor led in Ghana. Doctors are responsible for ordering baseline laboratory investigations including CD4 cell count as well as prescribing ARVs for eligible PWLHIV. These duties are discharged in consultation with other team members and in reference to the national protocol. Frontline staffs like midwives therefore refer clients to Doctors for continuum of care (GAC and MoH, 2008).

The PMTCT policy guideline (2008) uses CD4 cell absolute count as criteria for establishing ARV eligibility. CD4 count machines which are available in 144 health facilities in Ghana are therefore the determinant for initiation of ARV therapy. Clients have to be referred to higher facilities for continuum of care. (Annex I Summary of guideline for ARV prophylaxis).

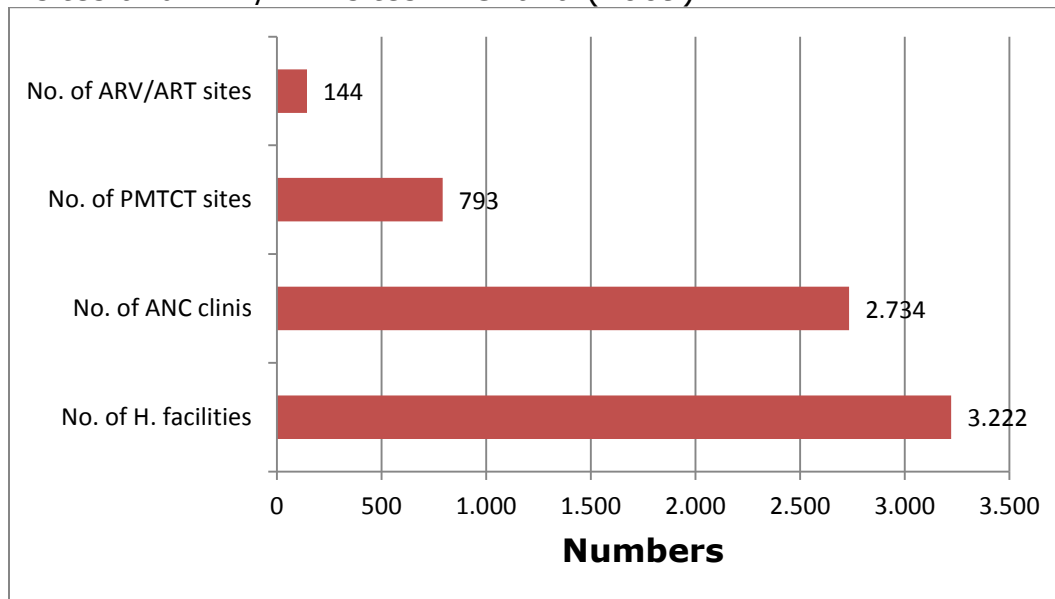
4.4 Availability

4.4.1 Service availability

Access depends on availability of the needed intervention in sufficient quantities. According to the MoH (2009), Ghana had 3,222 health facilities (Annex II) and 2,734 ANC sites at the end of 2009. Out of the ANC number, 29% (793) provided PMTCT services as at end of 2009 (GAC, 2010). Within the 793 PMTCT sites, 18% (144 facilities) have the capacity and the needed resources (Health workers, drugs, equipment, etc) to provide ARVs to HIV infected pregnant women (NACP, 2009). This situation presents a huge barrier to ARV access. The non ARV facilities refer pregnant women who are HIV positive to higher facilities for continuum of care. Many of these referrals

get lost due to poor follow up (Awonoor-Williams, J. K., 2010). This constitutes a missed opportunity to provide many HIV positive women with ARVs. Figure 4.4.1 shows the number of PMTCT sites in relation to ANC sites.

Figure 4.4.1 Bar chart showing numbers of Health facilities, ANC clinics, PMTCT sites and ARV/ART sites in Ghana (2009)



Source: MoH, 2009 and GAC, 2010

4.4.2 Financial resources

Financing for HIV related services including PMTCT are largely donor dependent with Global Fund responsible for 85% of the HIV/AIDS budget (Atum, et al, 2011). Other donors for HIV related programmes include PEPFAR, UNICEF and the government of Ghana who allocates 15% of the health budget to HIV/AIDS services (Asante, et al, 2008). The programme depends on funds from donors for procurement of PMTCT logistics including CD4 machines and ARVs. Inflow of funds for HIV programmes from the donors is not consistent. In 2007, about 52.50 million United State dollars was available for HIV/AIDS related programmes while in 2008, only about 38 million United State dollars was available (Asante, 2010). This can create many service gaps and affect access.

4.4.3 Human resources

Good quality and adequate quantity of human resources are very important for delivery of required PMTCT services. Health cadres needed for optimum PMTCT services include; trained counselors, midwives and physicians. Others are laboratory technicians, pharmacists and support staff.

Shortage of human resource for health is one of the major setbacks in delivery of comprehensive PMTCT services in Ghana. There are huge gaps between available health workers and health workers requires for quality delivery of services. The available workers are also not equitable distributed with many of them located in the urban centers (MOH, 2011b). This shortage and inequitable distribution of health staff has resulted in only a few facilities providing comprehensive services (GAC, 2010). The human resource for health situation in Ghana is shown in Table 4.4.3 below.

Table 4.4.3 Situation of human resource for health in Ghana (2009)

Types of health cadre	Number available	Number required	Percentage in urban area	Percentage in rural area	HW/1000 pop. (urban)	HW/1000 pop (rural)
Medical officers	1,945	3,732	70.00%	30.00%	0.13	0.04
General nurses	8,938	19,181	70.00%	30.00%	0.60	0.20
Midwives	4,929	8,205	40.00%	60.00%	0.60	0.60
Pharmacist	532	2,625	70.00%	30.00%	0.04	0.01
Medical assistants	712	1,242	30.00%	70.00%	0.02	0.04
Laboratory staff	923	1,062	70.00%	30.00%	0.06	0.02
Community Health Nurses	8,197	12,934	30.00%	70.00%	0.23	0.43

Source: MoH, 2009

The table shows substantial HRH gap in Ghana especially in the rural areas. This situation may not be able to support GAC vision of increasing HCT coverage from the current 40% (2009) to 90% by 2015 (USAID, 2010). According to GAC (2010b), 270 nurses and 728 midwives are trained to provide PMTCT services. To meet the GAC target of 90% coverage, 635 nurses and 1,035 midwives are required and the current 1,018 counselors needs to be increased to 7,613 by 2015 (Acquah, et al, 2010).

4.4.4 Supplies and equipment

HIV logistics are needed at all levels of the health system for successful implementation of PMTCT programmes. Continuous supply of logistics like test kits, ARVs, condoms and family planning commodities is very important. These logistics should be timely supplied in sufficient quantities and quality and have appropriate storage system (FHI, 2002).

PMTCT commodities are donor dependent and are procured through the national supply chain system. The management of the commodities is however not consistent across the country. While management of PMTCT logistics are integrated with other health logistics in sections of the country, management is vertical in other sections (USAID, 2006). Stock cards which are the major source for monitoring stock (especially at lower levels) are correctly used by 15% of health facilities to control PMTCT commodities. Inaccurate and late logistics reporting predispose the programme to intermittent stock outs at facility levels (USAID, 2006). Inadequate supply of equipment like CD4 count machines slows ARV access (UNGASS, 2010). Some Pregnant women in the rural area refuse HCT services because ARVs are not available at the facilities closest to them to protect their babies if they are tested positive. Also due to the unfair distribution of the available human resource for health, some of the facilities do not have the requisite personnel to provide PMTCT services (GSS et al, 2008).

4.4.5 Infrastructure

PMTCT services are delivered through the existing ANC without appreciable expansion of the existing infrastructure. There is therefore congestion at the various ANC/PMTCT sites which can compromise quality of the service, breaks privacy and increase waiting time for clients. Though the NACP has refurbished some existing ANC sites the programme has acknowledged that this is not enough to meet the anticipated increase in PMTCT coverage (GAC et al, 2010).

4.5 Geographic and Financial Accessibility to PMTCT services

Geographic accessibility is the travelling distance between the location of health service user and the service. Inadequate service points as described above couple with inequitable distributions of the service points across and within regions. This unfair distribution of service points are skewed in favour of the urban communities. Pregnant women, especially those in the rural communities have to travel long distances on bad roads to access PMTCT interventions (GAC, 2010). This creates problems accessing the services.

Financial accessibility is relationship between price of the intervention together with travelling and opportunity cost of access health intervention and the ability and willingness on user to pay without catastrophic consequences (Peters et al, 2008).

In Ghana, the government and development partners like Global Fund have made all ANC and PMTCT services free to remove financial barriers of accessing care. However, because of the inequitable distribution and non availability of the service points, women have to travel long distances to access comprehensive care. Many women, especially in the rural communities depend on their husbands economically and in decision making. To 50% of women in the lowest economic quintile, transport cost is a barrier to PMTCT services (GSS et al, 2008).

4.6 Individual and household characteristics

4.6.1 Age

In Ghana, studies have demonstrated an association between age of women and acceptance of VCT services. This association also exists among pregnant women who attend antenatal clinic. From the Ghana Demographic and Health Survey (GDHS), pregnant women between the ages of 30 years and 39 years were most (32.3%) willing to accept routine offer of HIV testing and counselling and receive test result. They are closely followed by those between 25 years and 29 years (30.9%). The ages above and below these age groups have lower (18%-22%) acceptance of HIV testing and counselling. Though studies have not identified contributing factors, this could be attributed to self reliance and socio-economic status. This attribute is due to the fact that the GDHS reports demonstrated that acceptability to test and receipt of test result among women increases with increase in wealth quintile (GSS et al, 2009).

4.6.2 Educational level

The GSS et al (2009) reported that 47.3% of women with secondary or higher education have comprehensive knowledge on PMTCT while 28.3% of women with lower education have comprehensive knowledge. The report also shows an association between uptake of comprehensive PMTCT services and level of education for pregnant women. Uptake increases with increase in level of education. 48.1% of pregnant women with secondary and higher education accept comprehensive PMTCT services including ARVs while 16.2% of pregnant women without formal education accept comprehensive services.

4.6.3 Knowledge and awareness of PMTCT services

Inadequate knowledge of HIV is considered partly responsible for the continuous HIV transmission and low utilization of HIV prevention services including PMTCT. It influences misconception which plays a vital role in stigma and discrimination (GAC, 2009).

About 85.3% of females and 77.6% of males between 15-49 years know of MTCT of HIV. However, only 50% of females and 44% of males know that the use of ARVs by pregnant women with HIV can reduce the risk of MTCT. Knowledge of the protective role of ARVs is lower among rural residents than among urban residents. This low awareness could contribute to low service utilization including uptake of ARVs. Education and wealth status have strong association with comprehensive knowledge of HIV/AIDS and MTCT of HIV (GSS et al, 2009).

4.6.4 Gender issues

Gender is a social determinant of health. It is defined by WHO as “socially constructed roles, behaviours, activities and attributes that a given society considers appropriate for men and women” (2010). Gender inequality reduces the ability and willingness of women to access PMTCT services to reduce MTCT of HIV.

Male dominance in social lives in Ghana has resulted in women’s economic dependency and predominance among those in the lowest wealth quintile in Ghana. This reduces the decision making power and reduce access to PMTCT services for pregnant women (MOWAC, 2010).

GSS et al (2009) findings show that decision making in families is centered on men and that 75% of married women depends on their husbands on decisions affecting their health. About 15% of married women have to seek permission from their husbands and/or in-laws before seeking health care while about 46% depends on their husbands for money before seeking health care. These women who depend on husbands for decision making may need their consent before accepting to test for HIV and receive test result.

4.6.5 Stigma and discrimination

All over the world, HIV related stigma and discrimination is one of the major barriers which prevent people from accepting HCT and HIV related treatment care and support services.

"Stigma remains the single most important barrier to public action. It is a main reason why too many people are afraid to see a doctor to determine whether they have the disease, or to seek treatment if so. It helps make AIDS the silent killer, because people fear the social disgrace of speaking about it, or taking easily available precautions. Stigma is a chief reason why the AIDS epidemic continues to devastate societies around the world"

Ban Ki-Moon, 2008

In Ghana community-based stigma is very high that it prevents women from accepting HCT for fear of positive result and its associated stigma and discrimination (Timberlake, 2010). Bevalot et al (2011), partly attributes the low utilization of PMTCT services to stigma and discrimination. Stigma from service providers leads to mistrust and prevent PLHIV from seeking care and treatment (Timberlake, 2010).

"When you are known to have been infected with HIV, you are ostracised, gossiped about, denied services, criticized, thrown out of the house, thrown out of marriage, and blamed for bringing disease into the family or into the community; basically you are feared," says Ms Susan Timberlake (2010).

Though Behavioural Surveillance Study (BSS) in 2006 established that 80.1% of Ghanaians have friendly attitude towards PLHIV (GHS/NACP, 2009), UNGASS report (2010) and Ulas, et al (2009) acknowledge that stigma and discrimination is a barrier to utilization of services

4.7 Quality

Quality in the context of PMTCT services covers many dimensions such as accessibility confidentiality, privacy and waiting time as well skills and attitude of providers and nature of the counselling rooms. They also include nature of delivery room, supplies and convenient opening hours as well as linkages for continuum of care (NACP, 2009). These also influence acceptability of the service.

In Ghana, PMTCT services are partially integrated into the existing ANC as mention earlier. This was done without expansion of the infrastructure at many of these facilities. Many facilities have specific days for ANC services which contributes to overcrowding at facilities. This can compromise quality of service in the areas of privacy, confidentiality and waiting time (GAC et al, 2010). There is also inadequate numbers of trained counselors which affect

the quality of counselling. Due to the work overload, contact time for counselling is not adequate while in some instances health staff without training in HIV counselling are used for counselling services (Acquah, et al, 2010).

Staff attitude plays pivotal role in PMTCT service uptake and coverage. Health staff have the responsibility to provide friendly and nondiscriminatory services which are culturally acceptable and in accordance with individuals expectations (GAC, 2004). Negative attitudes from staff erode clients' trust in the providers and the programme which leads to reduced utilization of services and impact negatively on coverage (Awusao-Asare et al, 1997).

Cultural and religious beliefs of health staffs are partly responsible for their negative attitudes (UNAIDS, 2000). Work overload and performance of many tasks without commensurable salaries and incentives may contribute to the negative attitudes towards clients. This affects the quality of counselling which affects the uptake of PMTCT services and invariably influences ARV coverage (Agyepong et al, 2004).

CHAPTER 5: Evidence of interventions in other low and middle income countries that have improved access to ARVs for pregnant women living with HIV to reduce MTCT

Many factors influence uptake of PMTCT services including counselling and testing. Many of these factors have been discussed earlier in the study. This portion focuses on interventions which have been proven to improve uptake of PMTCT services and access to ARVs.

5.1 Zambia

5.1.1 Availability

According to Zambia's National AIDS Council (NAC) (2012), PMTCT services are available in every ANC facility in Zambia. These PMTCT/ANC sites are well equipped through funding from PEPFAR while health workers are motivated financially to provide the needed intervention. The staff motivation is to compensate them for the extra volume of work they perform due to staff shortage. There is therefore demand for PMTCT services which promotes access to the service.

5.1.2 Geographic and financial accessibility

In Zambia, where there is near universal ANC attendance, PMTCT services are readily accessible in all ANC facilities. This brings the services closer to the user and therefore reduces the distance and travel time to receive PMTCT intervention. The intervention is likely to be sufficient for the target population and the effects of inequitable and unequal distribution of service may not be too pronounced (NAC, 2012).

Reduction in travel time to service point leads to reduction in transport and opportunity cost in seeking intervention. This reduces financial burden associated in accessing the intervention. This enhances access to PMTCT services and increased the proportion of pregnant women who accepted HCT from 57% of ANC registrants in 2007 to 98.9% in 2010. In 2010, all pregnant women who tested for also received their test result (UNICEF, 2010b).

Between 2009 and 2011, ARV access for eligible pregnant women to reduce MTCT increased from 58% to 88% which led to a reduction of paediatric HIV infection from 21,000 to 9,500 within the same period. These were achieved because of comprehensive services at the various ANC/PMTCT sites with less loss to follow-up (UNICEF, 2011b).

5.2 Malawi

5.2.1 Policy guideline and acceptability

Policy guideline of a programme determines its success or otherwise. In its bid to make ARVs accessible to many PWLHIV and reduce HIV related maternal mortality, Malawi changed its PMTCT guideline in 2010 to enhance universal access. Previously, CD4 cell count was used to assess the ARV need of PWLHIV. Under the new policy guideline, PWLHIV do not need the use of CD4 cell count machine to determine ARV eligibility. All PWLHIV are provided with ARVs and continue for life irrespective of the immune status (UNAIDS, 2012, WHO, 2012). This has advantages of treating the infected women and preventing transmission to their babies and partners.

This led to an increase in acceptance of HCT and receipt of test result from 52% among ANC registrants in 2010 to 71% in 2011. Also between June 2010 and July 2011, 82% of all pregnant women who tested positive to HIV had access to ARVs as both treatment and PMTCT. Integration of PMTCT and MCH services and availability of PMTCT services at all ANC sites are partly responsible for the success (MMoH, 2012).

5.3 Botswana

5.3.1 Human Resources

In Botswana, the PMTCT programme relied on nurses and midwives at the initial stages to deliver all services to pregnant women. Due to overload, the quality of HIV counselling was compromised with low coverage. The programme then trained secondary school graduates and used them as lay counselors. This increased acceptance of HCT and receipt of test result from 49% in 2002 to 79% in 2004. From 2004, routine opt-out HIV testing became a national policy with the lay counselors responsible for all counselling and testing. At the end of 2007, 97% of pregnant women received HIV test and test result (Sullivan et al, 2011).

5.3.2 Availability and accessibility

To increase access to ARVs for the target population, Botswana Ministry of Health expanded the number of health facilities with capacity to provide ARVs for all eligible PLHIV including pregnant women. All the districts were provided with at list one facility to meet the ARV need of the target population. This reduced cost incurred by pregnant women to access service and reduce lost to follow-up. This has resulted in ARV access for PMTCT consistently above 95% since 2006 (UNICEF, 2010c)

5.4 Rwanda

Quality of service

Rwanda employed a peer review strategy to increase access to PMTCT services. Peer review is the audit of services between different facilities and sharing of best practices to improve quality and acceptance. Collaboration and sharing of best practices have lead to increased trust of clients in provider which has increase uptake of services. This has resulted in an increased in acceptance of test result from 82% to 100% and virtual elimination of loss to follow up. Access to Nevirapine³ or PMTCT increased from 65% to 100% in 10 hospitals within 2 provinces where this was piloted (USAID, 2005).

³ Single dose ARV specifically for PMTCT

CHAPTER 6: DISCUSSION

This chapter discusses the findings from the study in chapters 4 and 5. It is organized on the major elements in the conceptual framework and included the findings from other low and middle income countries. A text on task shifting is also introduced in this chapter.

6.1 Availability

The findings show a reported consistent high level (above 90%) of ANC attendance in Ghana over the past 5 years. This is attributed in part to the availability of antenatal care services in all parts of the country. 85% (2,734) of the 3,222 health facilities in the country provided ANC services. Logistics availability for running ANC services is part of the general health system needs which is fairly present at the various facilities. Midwives, who are the front line staff at the ANC sites, are though insufficient in the whole country, they readily avail themselves to provide ANC services because it is one of their traditional roles. This makes ANC services readily accessible.

Availability of service is the determining factor to access. The study found that, out of the 2,734 ANC facilities available country-wide, PMTCT services are available in 29% (793) while 18% (144) of the available PMTCT sites offered ARVs as part of the services. The PMTCT facilities were also found to be inequitably distributed between rural and urban communities. The inadequate quantity of the PMTCT services creates barrier to access of the services. The study found that, 140 out of 170 districts have facilities to provide comprehensive services including provision of ARVs. The 30 districts without the facilities have to depend on others to access ARVs. This is an important barrier to access ARVs as a result of loss to follow up. Though data on access to HCT and ARVs at the PMTCT sites is limited, in the eastern region of the country, 81% (57,475) of the 70,966 ANC registrants were offered HCT while 67% (47,713) of the registrants were tested in 2009. Out of the number that got tested, 92% (43,834) received the test result (RHMISS, 2010)

Access to any health intervention depends on the quantity and quality of available human resources and the right mix of the resources. Human resource serves as a vehicle which combines all the other resources to produce an effect.

In Ghana, human resources for health are insufficient to meet the health needs of the populace. The study identified huge gaps between the available human resources and the number needed to provide quality PMTCT services. There is also unfair allocation of the resources which is skewed in favour of the urban communities. Provision of ARVs to pregnant women who are HIV

positive revolve around key health workers like Doctors, Nurses, Pharmacists, Laboratory Technicians, etc. Majority (70%) of these key workers is located in the urban communities in a country where urban and rural settlements are almost equal. The unavailability of social amenities like good schools and good road network may play a role in this. This situation reduces access to ARVs especially for PWLIV in the rural communities.

6.2 Task shifting

Shortage of well trained health workers is a global phenomenon. This is most pronounced in low and middle income countries where 57 countries are faced with acute shortage of healthcare workers. These are also the countries mostly affected by HIV and AIDS (WHO, 2007). An estimated 4 million health workers are needed to make up for the difference between the needed and available HRH. The shortage poses a threat to universal access to HIV interventions including PMTCT (WHO, 2006). Inadequate training and recruitment, inequitable distribution, migration and effects of HIV and AIDS are some of the contributing factors of the shortage.

It is in the face of this shortage that the WHO is advocating for task shifting to strengthen the HRH situation. Task shifting is "a process of delegation whereby tasks are moved from specialized to less specialized health workers (WHO, 2007). This helps to make judicious use of the available HRH. It has the advantages of linking communities and health facilities, provision of employment, reducing workload and improving access.

Uganda, Malawi and Ethiopia are some of the countries who through tasks shifting have increased access to HTC and ARVs. In these countries, HCT are shifted to trained non health professional while nurses are trained to provide ARVs (WHO, 2007).

Task shifting requires legislation to protect the providers and recipients of the services, supervision and monitoring as well as engagement of all relevant stakeholders. Evidence shows that, task shifting improves quality, acceptability, availability and accessibility of HIV services (WHO, 2007).

Supplies and equipments are very important elements of access to PMTCT services. Test Kits are needed to determine the HIV serostatus of individuals including pregnant women while equipments like CD4 cell count machine is needed to assess PMTCT service need. The use of CD4 machines helps to separate pregnant women who need ARVs for themselves and PMTCT from those who need it for PMTCT only. Though, this is an important gate keeping process, it deprives many PWLHIV of access to ARVs for PMTCT. The study found that supply of PMTCT logistics is dependent on funding from donor. The erratic pattern of donor funding coupled with lapses in the reporting system across the health system occasionally leads to shortage of test kits.

This negatively affects access to HCT services. CD4 cell count machines which are used to determine need for ARVs are available in 144 facilities across the nation and located mostly in the urban centers. This is also found to impede access to ARVs for PWLHIV not only for PMTCT but for treatment as well.

Access to ARVs also depends on available infrastructures like laboratory and pharmacy. The study found these infrastructures not available in most (82%) of the PMTCT sites reducing their ability to provide ARVs. This contributes in part to the low access to ARVs.

6.3 Geographic accessibility

This refers to the location of service in relation to the location of user or the travel time between user's location the service. The study found out that, service location is distant from the user. This situation is worse for communities in the rural areas. The inadequate number of service points could in part be due to the inadequate resources needed to provide and expand service. Pregnant women have to cover long distances to access HCT which is a disincentive. This is due in part to the 29% of ANC facilities which provide PMTCT services. Referrals to more distant facilities for comprehensive assessment and provision of ARVs also reduce access to ARVs due to loss to follow up.

6.4 Financial accessibility

This is the price of PMTCT intervention as well as the cost incurred in seeking the intervention in relation to the ability and willingness of the user to pay. Though, all PMTCT services, including ARVs are free to the user, due to the long travelling distance involved in seeking the intervention, travelling cost and opportunity cost for seeking intervention become high. In Ghana where women form the bulk of people in the lowest wealth quintile, this is a barrier to accessing the intervention including HCT and ARVs. The study revealed that 50% of pregnant women in the lowest wealth quintile see travel and opportunity costs as barriers to access.

6.5 Quality and acceptability of service

The study found that inadequate infrastructures at PMTCT sites negatively affect the quality of service. There is the need for adequate space to protect clients' privacy, promote confidentiality when providing PMTCT services. The service found out that, there has been little or no improvement in infrastructure at the PMTCT sites since its inception. This leads to congestions at various points which have the potential of breaching privacy and impact negatively on access to HCT and ARVs.

The imbalance between available health workers and the needed health worker is a potential barrier to access. The study found heavy workload coupled with the performance on many tasks by the available health workers. Staff who are not trained in PMTCT services are deployed to augment staff strength at the sites which leads to compromise in the quality of service, reduce acceptability and reduce access to service. Inadequate compensation for the heavy workload and extra duty hours performed by health workers promote negative behaviour which reduces acceptance of the service and impede access. Due to the heavy workload performed by a few health workers, it would unduly prolong the waiting time of clients who seek the intervention. This is likely to frustrate clients who need to travel long distances back home. This may be a disincentive to others who would need the service. Demand for services would be reduced which would lead to low access to the intervention.

6.6 Policy guideline

The PMTCT services are not well integrated into the ANC services. This has resulted in many ANC clinics which are closer to the communities but do not offer PMTCT services. Where PMTCT services are available, the policy guideline which dwells on the use of CD4 cell count machines for ARV need assessment does not permit many of the sites to provide ARVs to eligible pregnant women for PMTCT. This prevents clients from uptake of ARVs. The policy also restricts certain duties to specific key professionals. This is done in the face of shortage of the key health professional coupled with unfair allocation of such professionals. This has the tendency to create service gaps like routine offer of HCT and provision of ARVs thereby reducing their access.

6.7 Individual and household characteristic

Age, educational status, PMTCT knowledge and stigma are identified by the study to influence access to HCT and ARVs for pregnant women living with HIV. Pregnant women between 30-39years were found to have better access to HCT and ARVs in Ghana. This could be due in part to the fact that, this is the prime productive age among women in Ghana and are less likely to be dependent on their husbands economically and in decision affecting their health.

Access to HCT and ARVs are also influenced by the educational status of the pregnant women which also influence their knowledge on PMTCT. Comprehensive knowledge of PMTCT increases with increased status of education. In Ghana where about 60% of women in their reproductive lives (15-49years) never attended secondary school. This affects their knowledge

on PMTCT and negatively influence access to HCT and ARVs. This can also be explained by the likely financial independence of the educated pregnant women and the likelihood to take charge of their health and be able to afford cost of seeking the services.

Stigma and discrimination was found to limit access and utilization of HCT and ARV services. Though, many pregnant women want to know their status and prevent their babies from getting infected with HIV, fear of positive result and associated stigma and discrimination do not permit them to accept HCT. This negative attitude is partly due to the entrenched cultural norms and inadequate knowledge on HIV.

6.8 Evidence from other low and middle income countries

6.8.1 Availability

In Zambia, PMTCT services are readily available in all ANC clinics. These sites are well resourced to provide all PMTCT services therefore creating demand for the services to increase access to HCT and ARVs. This was made possible by huge donor funding from PEPFAR. Though the HIV prevalence is higher in Zambia than in Ghana, availability of ANC clinics and near universal ANC attendance are some similar characteristics. This is possible to be adapted with commitment on the part of government and donors.

6.8.2 Accessibility

The availability of PMTCT services in all ANC clinics makes the services closer to the communities who need them thereby promoting access. Financially, the cost of access to HCT and ARV services may not pose a barrier due to the closeness of the services. This is in sharp contrast to the situation in Ghana where 71% of ANC facilities do not offer PMTCT only 18% of the PMTCT sites provide ARVs as part of the services. Zambia's situation can be implemented when the services are made available with the needed resources and if policies are reviewed to make room for task shifting.

Malawi changed its policy guideline to make ARVs more accessible by putting every pregnant woman living with HIV on lifelong antiretroviral therapy (ART). This has the advantage of protecting both mothers and babies. Though this has huge financial implications, the long term benefit, if it is managed well will outweigh the cost. Though starting ART early has adherence challenges and the possibility of introducing second and third line regimens, these negative effects can be surmounted when adherence monitoring is shifted to community health workers. This can be replicated in Ghana with a review of policy and involvement of stakeholders.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The organization and design of Ghana's PMTCT programme is in line with the WHO recommendation though the first two prongs are not directly under the PMTCT program. With a scale up of the programme in 2005 after piloting in four facilities, Ghana has recorded marginal gains in both access to HCT and ARVs.

Though the PMTCT sites have increased from 135 in 2005 to 793 at end of 2009, this represents 29% coverage of the available ANC site. These available service sites were found to be inequitably distributed with the majority located in the urban centers. The study also found that only 18% of the sites have the capacity to provide ARVs. This situation has resulted in geographical and financial inaccessibility to the service leading to low demand and eventual low access to HCT and ARV services.

Though the antenatal care utilization has been consistently above 90% since 2005 (97% in 2009), this presenting opportunity could not be utilized to reach the same proportion of pregnant women with PMTCT services. Acceptance to HIV counselling and testing was 40% though available data did not specify the proportion that was offered the test. There is a further drop along the cascade with ARV access of 28% for eligible clients.

Using the conceptual framework which attributes access to availability, geographic and financial accessibility as well as acceptability with interaction with policy, macro-environment and individual and household characteristics; many factors were found to influence low uptake of HCT and ARVs for MTCT.

PMTCT service is not available in majority of health facilities in Ghana. 29% (793) out of the 2,734 ANC facilities provided PMTCT service. This led to low demand for the services. The demand is partly attributed to the inadequate number of PMTCT sites because, in the eastern region of Ghana, 81% of ANC registrants were offered HCT services, 67% got tested while 92% received test result

CD4 cell count machines are used for assessment of ARV eligibility including ARVs for pregnant women for PMTCT of HIV. CD4 cell count machine is available in only 18% of the PMTCT sites. ARVs are not available in 82% of the sites therefore reducing access to them. The non ARV sites resort to referral of clients to facilities with ARV services for continuum of care.

There is a huge human resource (health workforce) gap and unfair allocation of the available health workforce. This deprives many health facilities especially those in the rural settings the needed workforce to offer HCT services to their clients and the capacity to initiate eligible PWLHIV on antiretrovirals to reduce MTCT of HIV. Many of the referred clients end up not accessing the service.

PMTCT services were found to be distant from the location of the users. Potential users have to travel long distances for long hours to access services. Clients therefore incur high transport and opportunity costs to access services like provision of ARVs for PMTCT. This creates barrier to access of ARVs.

There are inadequate infrastructures for HIV counselling and other PMTCT services. This leads to overcrowding at the facilities there by compromising the quality of the services in the form of privacy and confidentiality. This situation reduces the acceptability of the service which leads to reduced uptake of HCT and ARVs.

There is low knowledge and awareness of PMTCT services among Ghanaian women. Only 50% of women are aware of the benefits of antiretrovirals. These women may not see the relevance of demanding for PMTCT services.

The study found stigma and discrimination as high in both communities and health care settings among health staff. This discourages pregnant women from accepting HIV counselling and testing for fear of stigma if they are found to be positive.

Study from other low and middle income countries shows that full integration of PMTCT services into ANC increases availability of comprehensive services. This was found to create demand to increase access to HCT and ARVs. It was also found out that increasing PMTCT sites brings service closure to the users and removes both geographic and financial barriers to access.

A successful intervention that was used to reduce workload and improve quality of counselling is task shifting. The use of lay counselors was found to increase acceptability of counselling and increased uptake of HCT.

The study identified that access to ARVs is greatly improved when all pregnant women living with HIV are provided with lifelong treatment with ARVs for PMTCT and also to protect the mothers. The study found that, this removes the barrier associated with the use of CD4 cell count machines to determine eligibility for ARVs

7.2 Recommendations

Judging from the current shortage of health workforce, shifting of less clinical tasks to lower level health cadres needs to be explored. Non medical staff can also be engaged and trained as counselors and perform other non clinical support duties. This needs close supervision and monitoring to prevent abuse.

Build capacity of lower level health professionals like midwives who are closer to the pregnant women to initiate eligible pregnant women on ARVs. This will reduce the workload on the available doctors and increase the number of eligible ARVs beneficiaries.

All pregnant women living with HIV need to be considered for full antiretroviral therapy and continue for life without the use of CD4 cell count machine which is identified as a barrier. This would improve the health of the mother and prevent infection to the baby.

Improve infrastructural base at the PMTCT site to increase working space. This would ease congestion and protect privacy and confidentiality thereby increasing the acceptability of the services.

Expand the number of PMTCT sites and fully integrate PMTCT in ANC to improve programme coverage and remove geographical and financial barriers to accessing services.

Improvement in the supply chain management and strengthening of logistic management information system especially at the operational level should be considered. This will promote efficiency and increase continuous flow of PMTCT logistics including ARVs.

Community should be educated and sensitized on MTCT of HIV to increase their knowledge and create awareness of PMTCT of HIV services at the PMTCT sites. This will increase demand for PMTCT services and improve access to HCT and ARVs.

Health staff should be trained to adopt friendly attitude towards pregnant women living with HIV and provide them with nondiscriminatory services. Sanctions should be applied to offenders.

Provide incentive packages for health staff and institute retention schemes to motivate them to cope with the work overload and attract them to the rural areas.

Conduct research to determine the feasibility of initiating pregnant women with HIV on ARVs without the use of CD4 cell count machines and the appropriateness of allowing midwives to provide ARVs to the eligible pregnant women.

Improve on the health management information system to improve PMTCT data quality and make PMTCT data and information user friendly.

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ANNEXES

Annex I **Summary Guidelines for ARV Prophylaxis in PMTCT**

Pregnancy (ante-partum)	Labour (intrapartum)	Post-partum
≥28 weeks gestation: AZT/3TC 12hrly	AZT/3TC 12hrly +Sd* NVP	MOTHER: AZT/3TC 12hrly for 7 days INFANT: Sd NVP+ AZT/3TC 12hrly for 7 days
No ante-partum ART or woman took ART for < 4 weeks	Sd NVP + AZT/3TC 12hrly	MOTHER: AZT/3TC 12hrly for 7 days INFANT: Sd NVP+ AZT/3TC 12hrly for 6 weeks

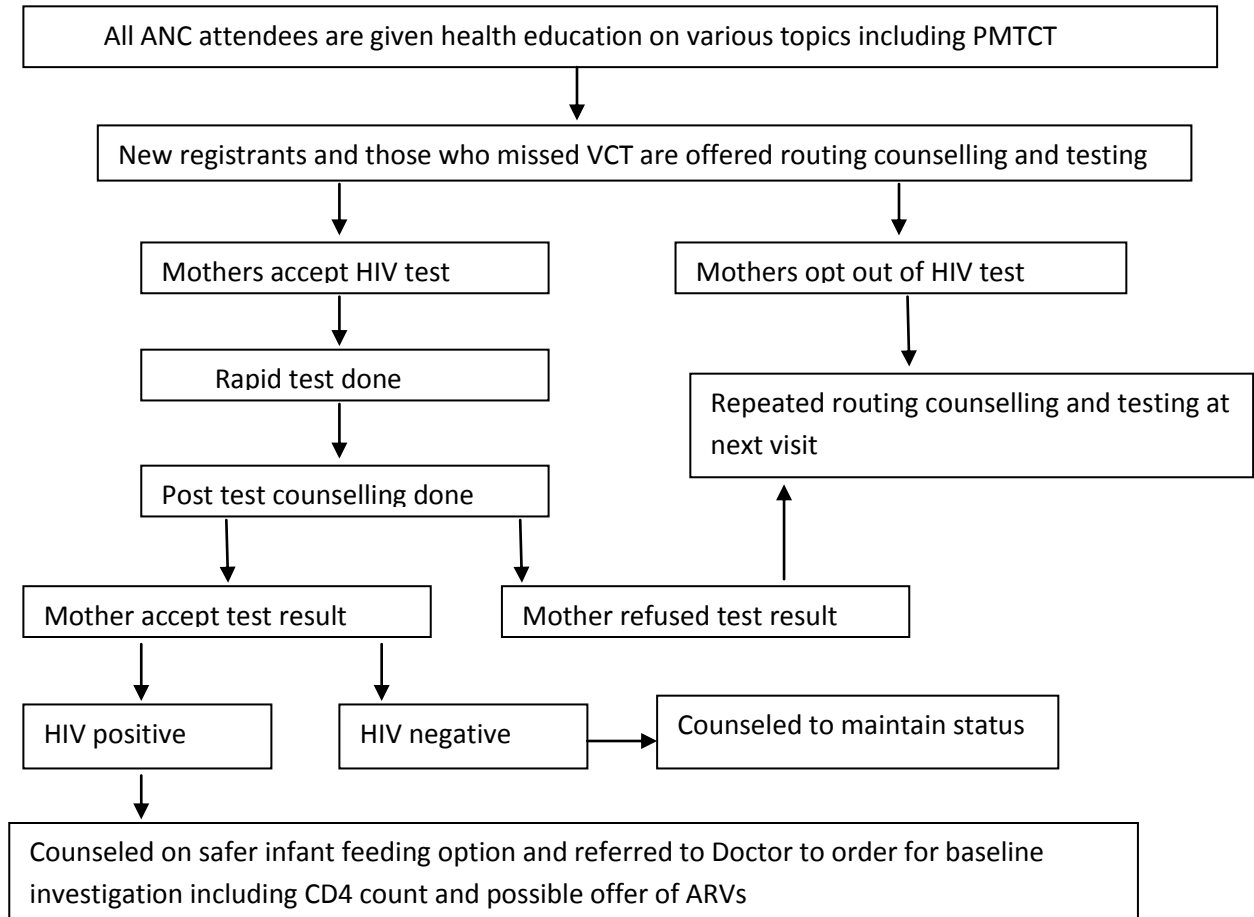
Source: GAC/MoM, 2008 *Sd = Single dose

Annex II Number and types of health facilities by region

REGION	Teaching/ Regional/ Psychiatric	Other Hosp.	Poly- Clinics	HC & Clinics	Mat. Homes	CHPS	Total
Ashanti	1	92		347	105	4	549
Greater Accra	4	97	7	296	58	4	466
Western	1	24	2	268	61	65	421
Eastern	1	25		254	48	44	372
Northern	2	19		180	8	95	304
Volta	1	27	1	224	24	19	296
Brong Ahafo	1	27	1	182	49	8	268
Central	2	22		166	34	43	267
Upper East	1	5		81	2	55	144
Upper West	1	8		81	6	39	135
Total	15	346	11	2,079	395	376	3,222

Source: MoH, 2009

Annex III Rapid HIV testing algorithm



Source: GAC and MoH, 2008