THE CAPACITY OF HEALTH FACILITIES IN PROVIDING ANTIRETROVIRAL THERAPY IN DAR ES SALAAM REGION

BY

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(M.SC IN PHARMACY)

A DISSERTATION SUBMITED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN THE UNIVERSITY OF DAR ES SALAAM

2005

CERTIFICATION

The undersigned certify that he has read and hereby recommend for acceptance by the University of Dar es Salaam a dissertation entitled: "**The capacity of Health Facilities in providing antiretroviral therapy in Dar es salaam region"**. Presented for partial fulfillment of the requirements for the degree of Masters of Public Health.

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I hereby solemnly declare that this dissertation is my original work and has never been presented or accepted for any other diploma or degree in any other university.

Candidate's signature  ----------

SIANA GIDEON MAPUNJO

Date 28/10/05 ----------

DEDICATION

This work is dedicated to my husband Aloyce Joseph Musika and my sons Samuel and Gideon. Thank you for your support during my study.

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ABSTRACT

A cross- sectional descriptive study was conducted to assess the capacity of Dar es salaam Health Facilities in delivering ART from May to July 2005.Twelve government and non- government Health Facilities were included in this study. Six of the studied facilities were designated by MOH to provide antiretrovirals since October 2004; four were designated since May 2005; and two of them were not designated.

Checklist was used as an assessment tool to guide interview and observations. The MOH guideline in the management of HIV/AIDS guided the preparation of checklist.

The study findings indicated that there were inadequate trained personnel, inadequate laboratory equipments, inadequate antiretrovirals and isoniazed was under utilized. It was noted that not all eligible patients were able to start ARVs. Comprehensive HIV care and treatment was not fulfilled in some facilities. In some of the studied Facilities there was lack of infrastructure including inadequate confidential place for counselling. The Health Information System was comparatively weak. Drug disposal was improper.

It was concluded that the capacity of Health Facility to provide ART varies from facilities. There was a better capacity for the facilities designated to deliver antiretrovirals from October 2004 compared to those designated from May 2005 indicating a potential for improvement in future. In order for the program to treat more than 400,00 HIV/AIDS patients in the next five year it need emphasis on staff training, improvement of infrastructure, enhance adequate equipment and drugs, strengthening HMIS, and comprehensive care service.

Further studies are recommended in future to assess the effect of ARVs on the quality and economic life of HIV/AIDS patients.

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LIST OF ACRONYMS/ABBREVIATIONS

3 by 5	WHO "3 by 5"initiative: 3million people on ART by end of 2005
3TC	Lamivudine
AIDS	Acquired Immune Deficiency Syndrome
AMO	Assistant Medical Officer
ARV	Antiretrovirals
ART	Anti-Retroviral Treatment
AZT	Zidovudine
CHGA	Commission on HIV AIDS and Governance in Africa
CO	Clinical Officer
CMOH	City Medical Officer of Health
CTC	Care and Treatment Clinic
CD4	T-lymphocyte cell
D4T	Stavudine
EFZ	Efavirenz
GAO	United State General Accounting Office
HAART	Highly Active Antiretroviral Therapy
HBC	Home Based Care
H/F	Health Facilities
HIV	Human Immunodefficiency Virus
MD	Medical doctor
MDH	Muhimbili University of Health Science, Da es salaam City, Harvard School of Public Health

MO	Medical Officer
MOH	Ministry of Health
MSF	Medecins Sans Frontieres
MSH	Management Sciences for Health
MUCHS	Muhimbili University College of Health Science
NACP	National Aids Control Program
NCTP	National Care and Treatment Plan
NNRTI	Non Nucleoside Reverse Transcriptase Inhibitors
NRTI	Nucleoside Reverse Transcriptase inhibitor
NVP	Nevirapine
OI	Opportunistic Infection
PASADA	Pastoral Activities and Services for people with AIDS Dar es Salaam Archdiocese
PHC	Primary Health Care
PCR	Polymerize Chain Reaction
PEP	Post Exposure Prophylaxis
PLWHA	People living with HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
SOP	Standard Operating Procedure
STI	Sexual Transmitted Infection
TACAIDS	Tanzania Commission for HIV/ADS
TB	Tuberculosis
TFDA	Tanzania Food and Drug Authority

TOH	Tanzania Occupational Health
UN	United Nation
UNGASS	United Nation General Assembly Special Session
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

CHAPTER 1

1.0 INTRODUCTION

1.1 Background

The major urgent public health problem the world is facing today is HIV/AIDS. The introduction of Highly Active Antiretrovirals (HAART) provided HIV/AIDS patients with opportunities for quality of life improvement by stopping or inhibiting the replication of human immunodeficiency virus, HIV. Although antiretroviral therapy cannot cure HIV infection, it has been proven to extend and improve life for large numbers of people living with HIV/AIDS. Antiretroviral therapy has thus transformed perceptions of HIV/AIDS to a manageable chronic illness in many countries (WHO, 2002)

In the absence of treatment HIV is viewed as a death sentence. With no hope of survival many individuals refuse to be tested, and this shows lack of information needed to protect themselves and others. Lack of treatment contributes to fear of the disease and stigmatisation of those live with it, further hindering test efforts. The availability of treatment demystifies, and thus destigmatizes AIDS and people who have it. The availability of treatment also provides an incentive to get tested. Treatment then can provide links to prevention efforts. In addition, treatment provides a means to address the devastating consequences of AIDS-related mortality. Treatment in its basic ability prolong life and reduce morbidity, allows individuals to continue working (U.S Department of State, 2004)

At the UN General Assembly High Level meeting on HIV/AIDS on 22 September 2003, WHO declared that the lack of access to HIV treatment was a global health emergency. WHO calls for unprecedented action to ensure that by the end of 2005 at least 3 million people in need of ART will have access to it. Currently, fewer than 5% of people in developing countries who need antiretrovirals can access the medicine in question (WHO, 2003).

Addressing the UN General Assembly, in New York on 22nd September 2003, WHO Director General Dr.Lee Jong –wook said "To deliver antiretroviral to the millions who need it, we must change the way we think and change the way we act. Business as usual will not work. Business as usual means watching thousand of people die every single day".

The United Republic of Tanzania is rapidly scaling up its HIV/AIDS program and is working with a number of partners that are providing funding and technical assistance. One of the current goals for its HIV/AIDS programme is to have more than 400,000 individuals on antiretroviral treatment (ART) in the next five years (Snow, 2003)

In order to be able to reach more than half million HIV positive Tanzanians who are expected to require treatment as described in the National HIV/AIDS Care and Treatment Plan (NCTP), it will be necessary to have hundred of health care facilities, public and private, of various sizes and capabilities spread equitably throughout the

country. These facilities each will have to meet minimum criteria in order to provide quality care and treatment services for People Living with HIV/AIDS (PLWHA). Currently, not all health facilities meet the minimum standard needed for quality HIV/AIDS care and treatment, therefore health facilities need to be strengthened before they can start and/or expand ART services (MOH, 2004)

The care and treatment unit has developed an accreditation process to identify facilities as potential ARV providers and to manage the strengthening process in delivering ART. The following indicators are being used as minimum criteria to start or expand antiretroviral therapy: Organisation of HIV/AIDS care within the facility; Human resource capacity, training and guidelines; Clinical HIV/AIDS care and treatment services; Patients records and reporting system; Community preparedness for HIV/AIDS care and treatment; Continuum of care; Voluntary Counselling and Testing; Laboratory services; Pharmacy services (MOH, 2004)

1.2 Problem Statement

In the way of scaling up AIDS treatment within Africa there are challenges related to the limited capacity of health system (CHGA, 2004)

Even if we would have free and unlimited supplies of ARVs and other essential HIV/AIDS commodities still there would not be available services to the majority who need them, because of poor infrastructure. Building capacity and mobilizing resources on the scale needed to meet national treatment target is daunting for

constrained regions are over–stretched, underdeveloped and operate at sub-optimal level (Wasunna et al, 2004)

The District Health services Technical Review (in Tanzania) in March 2004 observed that the introduction of HAART would be an enormous additional burden on the health delivery system. That includes: 1. Human resources; requiring at least 25% increase in work force to deliver NCTP, and a considerable amount of training of existing staff; 2.Drugs and material, which have been found to be in short supply for selected commodities, and where well functioning procurement and distribution system are needed to ensure implementation of NCTP; 3.Physical infrastructures where clinics need to be established to prescribe ARVs, to monitor the patients condition and provide other care and treatment for HIV positive patients; 4.Information resources ,where the existing Health Management Information System is not adequate to support scaling up of HIV care and treatment. The NCTP reports states that the current state of the laboratory infrastructure is inadequate and cannot support the planned care and treatment emergency scale up. Further, the Synergy Project assessment found that the biggest barriers to control HIV//AIDS are the lack of data. When the data were collected, there was no formal system for analysis, dissemination and feedback so that the information could be used for public health or treatment planning and evaluation (Hutton, 2004).

The U.S General Accounting Office (GAO) found that the infrastructure needed to manage and deliver ART in developing countries is inadequate. The National

AIDS Control Programs indicators and the data collection methods are not sufficient to identify populations infected with HIV. Inadequate feedback to those who administer services or collect data hampers the improvement of the program. The infrastructure needed to manage and deliver drug and other medical supplies in developing countries are inadequate. The mechanism for referring patients from sites where they can receive treatment need to be improved. In addition the deteriorated physical infrastructure constitutes a challenge to expanding ARV treatment programs. Many of the hospitals, clinics, and laboratories are ill equipped to handle expansion of ARV treatment (GAO, 2004).

Analysis shows that human resource capacity is a constraint to expanding the ART programme. Providing ART to every one who is clinically eligible would after five years require twice the number of laboratory technicians and half the doctors currently available in the public health system (PHR, 2004). Research shows that in Tanzania there are fewer than 100 physician specialists serving a population of approximately 35 million. Regional and district hospital have few or no physician and are mostly staffed by clinical officers with only the most basic medical training. It is estimated that if physicians are required to prescribed ARV therapy, 400 more physicians would be needed immediately in the country (Marlink, 2004)

Many sub-Saharan Africa countries are limiting the number of new patients receiving HIV/AIDS care because of insufficient health infrastructure and a shortage of health care workers. Some sub-Saharan Africa countries experiencing

capacity problems in health clinics after enrolling a few thousand patients in antirctroviral drug programs (Medilexicon, 2005)

WHO recommend that the initial administration of ARV to infected adolescents and adults occur when there is evidence of clinical AIDS or when CD4 count is less than 200/mm^3. In areas where health services are poor and diagnostic laboratories are ill equipped or non-existent, even though many individuals have AIDS, cases are diagnosed very late in the infectious cycle. Late clinical diagnosis is usually associated with opportunistic infections like TB and pneumonia at advanced stage of the infection.

Another problem is the difficult of administering ARV drugs that have to be used in a lifetime and the requirement of close monitoring of the patients. Procedures recommended by WHO are quite demanding and in most case require highly trained professionals.

1.3 Rationale

Several requirement and recommendations from previous studies and programmes indicate that, a certain level of capacity is required as a standard in delivering antiretroviral therapy. Since in Tanzania the scaling- up program has just started, very little is known on the capacity of the newly designated health facilities in implementing the ARVs programmes. The aim of the study was therefore to determine the capacity of health facilities in providing HIV/AIDS care and

treatment services. The findings will help the responsible authority to understand the gap in delivering ART and therefore develop appropriate responses.

1.4. General Objective

To determine the capacity of Health Facilities in providing ART and comprehensive care in line with MOH stipulated guideline.

1.5 Specific Objective:

1.5.1. To assess the availability of trained personnel in providing antiretroviral therapy

1.5.2. To assess the availability of equipments, drugs and guidelines in providing antiretroviral therapy

1.5.3. To assess the adequacy of HIV/AIDS services (VCT, HIV testing, OI, HBC, PMTCT, ARV provision) in the health facility

1.5.4. To assess availability of the health facility recording and reporting system for HIV/AIDS management

1.5.5. To determine proportion of patients who are already counselled and are on continuous antiretroviral treatment in the facilities.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Standards for quality HIV care

Standards are expectations of performance, and one of the most powerful tools that can move the organizations towards better care. The standards can help organizations understand how they can meet the treatment needs of a variety of population. The standard can also provide a vision of where programme need to mature and expand to improve effectiveness. Many countries have developed programmes for licensing and accrediting health facilities especially hospitals. The term accreditation applies to the systematic assessment, against explicit standards, of an entire organization and not a particular clinical speciality area. The accreditation standards used in national accreditation programmes are intended to evaluate the quality of all aspects of a health care facility and not specific treatment programmes (WHO, 2004a)

Each standards has discrete elements that can be measured during the on – site evaluation process. Indicators that represent the rate of accomplishment of the standards or the expected threshold can also measure many standards. Therefore standards, measurable sub –elements of standards and indicators can all play an important role in understanding how the therapy site is progressing toward fully meeting all the requirements. The functions carried out in every health care delivery system determine the level of quality of services and the extent to which the desired outcomes are achieved. The

standards included in each of category are identified and included the structure, the process and the outcome. The following are the key functions related to HIV/AIDS care and treatment: HIV testing, counselling and referral; Management of opportunistic infections, including TB, Provision of ART; Support for adherence to treatment; Preventing mother to child transmission of HIV infection; Palliative care; Information management system; Human resource management; Laboratory management; Management of drugs and supplies; Financial management; and the rights of people living with HIV/AIDS and reducing stigmatisation (WHO, 2004a).

Minimum set of criteria to initiate antiretroviral therapy in resource constrained countries are: HIV testing and counselling; Personnel trained and certified to prescribe therapy and follow up recipients clinically; An uninterrupted supply of antiretroviral drugs; A secure and confidential patients record system (WHO, 2004a).

Large-scale in HIV/AIDS care, treatment and prevention programs will require proportionate investment in creating host-country capacity-facilities, equipments and supplies, and most important in training of people. More clinic and trained staff will be needed to carry out counselling , treatment, prevention, and care activities , and more laboratory capacity will be needed for HIV testing itself as well as for diagnosing opportunistic infections, drug resistance, and adverse effect of ART (Morrison, 2002)

Various capacity issue that allow the health system to successfully provide HIV/AIDS prevention and care are discussed in terms of Hard capacity, which includes infrastructure: number of hospitals for HIV/AIDS care, home care projects, laboratory, Human resources etc. Soft capacity includes democratic government system and political stability, economic factors, social aspects, institutional environment etc. The identification and analysis of these capacities and the formulation of measures to strengthen them can allow the greater success of HIV/AIDS programmes. (Oliveira –Cruz, 1999) Capacity building is necessary, not only for the sites where antiretroviral therapy is delivered but also for diverse delivery sites from community to national referral hospitals where key care and support services are delivered, such as antenatal care, counselling and testing and postnatal care. Specialized service programmes that serve as entry points to HIV care, such as TB programmes or sexually transmitted infection clinics, as well as untraditional non – specialized sites, must have the capacity to provide antiretroviral therapy. Support functions, especially laboratories and pharmacy must be included. The specific tasks for each site must be clearly delineated and norms or expectations of performance defined (WHO, 2004a).

Key issues to be addressed before introducing ARV treatment into existing health systems include; establishing laboratory capacity, mechanisms to control drug supply, assuring quality management, informing the public about the benefits and implications of ARV interventions, providing training and assuring an adequate number of health care and support staff. Quality

management and quality assurance are monitoring mechanism used to ensure that minimal standards are met for the components of ARV intervention, including the inputs required for the intervention, the process of implementing the intervention, staff performance, job satisfaction and outcomes. The use of indicators for these various components is essential and must be incorporated into all ARV intervention or programmes from their initiation. The quality of the ARV services provided must be maintained and regularly reviewed to ensure that expected out care being delivered (UNAIDS&WHO, 2004)

It is suggested that from the moment a patients test HIV –positive, should be referred to the centre for counselling and testing (CTC). At the baseline the following tests should be done; Blood count, liver function, kidney function, pregnancy test (if possible), viral load (where available). Treatment decision will be based on the extent of disease progression. For adults and adolescence CD4 T -lymphocyte count remains the gold standard for evaluating immune function. WHO recommends that, in resource – limited settings, HIV-infected adults and adolescence should start therapy when the infection has been confirmed and one of the following condition is present: 1. WHO stage I or II or HIV disease with CD4 count $\leq$200cells/ml, regardless of symptoms; 2. WHO stage IV HIV disease, regardless of CD4 cell count; 3. WHO stage III disease with regard of using CD4 cell count $\leq$350 cell/ml to assist decision-making. For HIV sero-positive infants aged <18 months initiation of ARV is

recommended if the infants have virological proven infection (using HIV PCR, HIV RNA assay or P24).

There are two classes to initiate therapy: WHO Paediatric Stage III HIV disease irrespective of CD4 count: WHO stage I or II disease with CD4 < 20%. If the virological confirmation of diagnosis is not available the commencing of ARV is when the paediatric is in WHO stage III disease and CD4< 20%. For children over 18 months of age, a positive antibody test is an indication of HIV infection. The initiation of ART is therefore indicated if the children are in WHO paediatric stage III HIV disease, irrespective of CD4 count or WHO Paediatric stage I or II disease and CD4 <15%. All children in stage III could be started ARV therapy even if a CD4 count is not available, but attempt should be made to do a CD4 count for monitoring (MOH, 2004)

Staging System for HIV infection according to WHO included:

Adult and adolescents:

Clinical stage I: Asymptomatic; Generalized lymphadenopathy

Clinical stage II: Weight loss 5-10% of body weight; Minor mucocutaneous manifestations Herpes zoster within the last 5 years; recurrent upper respiratory tract infections

Clinical stage III: weight loss >10% body weight; Unexplained chronic diarrhoea> 1 month; Unexplained prolonged fever > 1 month; Oral candidiasis; Oral hairy leukoplakia; Pulmonary tuberculosis; Severe bacterial infections

Clinical stage IV: HIV wasting syndrome; Pneumonia; diarrhoea; Toxoplamosis of the brain; Cytomegalovirus disease; Herpes simplex virus infection; Leucoencephalopathy; Candidiasis of oesophagus; Endemic mycosis; Non typhoid Salmonella septicaemia; Extrapulmonary TB; Lymphorma; Kaposis sarcoma; HIV encephalopathy

Children

Clinical stage I: Asymptomatic; Generalized lymphadenopathy

Clinical stage II: Chronic diarrhoea; Recurrent candidiasis; Weight loss or failure to thrive; Persistence fever; Recurrent severe bacteria infection

Clinical stage III: AIDS defining opportunistic infection; Severe failure to thrive; Progressive encephalopathy; Malignancy; Recurrent septicaemia or meningitis (WHO, 2003)

2.2 Human Resource

Health care agencies report that the major limiting factor for implementing effective health policies and reform worldwide is lack of qualified human resources. Although many agencies have adopted policy development and clinical practice guidelines, the human resources necessary to carry out these policies towards actual reform are not yet in place. A study done in Northern Tanzania found that there are adequate allocated human resources for health care provision in Tanzania according to national standards. Compared to

similar countries however Tanzania has a very low availability of health care staffs. Most qualified staff is concentrated in a few centralized locations, while those remaining are inequitably and inefficiently distributed in rural areas and lower level services. They concluded that National guidelines for human resource in Tanzania require focused revision in order to reflect the quality indicators more adequately (Oystein, 2004)

The available pool of skilled health workers has been decimated in many developing countries due to HIV/AIDS pandemic. Work overload, declining morale and weak management system all contribute to this human resource crisis. Considering the devastating effects of HIV/AIDS Health Facilities are now striving to incorporate HIV/AIDS related services. Unfortunately without an adequate number of trained health workers to administer HIV tests and to provide AIDS treatment, care and counseling, their results will be minimized. To address these staffing challenges, it is imperative that Health Facilities assess their workforce needs and design plans to ensure that a sufficient number of skilled personnel are available (MSH, 2004).

In order to fully comprehend, diagnose, and improve human resource constraints in Kenya. MSH conducted an assessment of human resource capacity at four Health Facilities in Mombasa –at two hospitals, one public and one municipal, and at both a public and a private clinic. Results from the assessment were staggering. All four Health Facilities had a fifty percent vacancy rate in their staffing. In one facility, 600 nurses were needed, yet

only 314 nurses were employed. The data collected and analyzed from assessment provided the information needed to develop short- and long-term recommendations for the four Health Facilities (MSH, 2004)

In another Kenyan study, it was shown that whilst doctors throughout the country were prescribing antiretroviral drugs only 30% of these doctors had received any training in administering and monitoring ART (CHGA, 2004)

The human resource challenge is possibly the greatest obstacle in swift implementation of HIV/AIDS program in Botswana. The country is still far from having the numbers of adequately trained health care providers, technicians and social workers to meet the need of counselling, testing and treatment in the country. Many programs related to HIV care are not yet performing as hoped- with clear gaps between programs goal and their actual performance (Alcon et al, 2004)

Uganda lacks adequate numbers of skilled health care personnel as the case in other countries in sub –Saharan Africa, with only 1600 physician for a population of over 20 million people. The implementation guideline for ARV therapy in Uganda states that, even though ARV drug may not be directly available or affordable, health provider need to be equipped with regularly updated information that is technically sound and regularly updated. Therefore the Ministry of health seeks to ensure that appropriate training material is developed and that there are training courses for every type of

health provider, including physicians, nurses, counsellors, laboratory staff, pharmacist and dispensers. (Okero et al, 2003)

In 2004 the Rational Pharmaceutical management program of MSH was tasked with strengthening the drug management system for the Ministry of Health and Social Service in Namibia as part of its strategy to scale up HIV/AIDS services. The burden of HIV/AIDS on health service delivery system and the demand it places on human resources is enormous and will be felt many years into the feature. One immediate challenge is the acute shortage of pharmacist and pharmacist assistants. It is estimated that 44 pharmacists are needed to fill current vacancies. While Namibia has a training program for pharmacist's assistants, it lacks the capacity to train pharmacists in country (MSH, 2004)

2.3 HIV care and treatment

WHO and other international organizations reviewed and revised the indicators as the interim document for international HIV care and support. They mentioned core indicators as: The number of individuals receiving HIV testing and counselling; The number and percent of persons with advanced HIV infections receiving ART; The existence of comprehensive HIV/AIDS care and support policies and guidelines; The percent of facilities that either provide comprehensive care and support services on site for people living with HIV or

management; percent of health facilities that have the capacity and conditions to provide advanced level HIV care and support services including provision and monitoring of ART; The percent of designated laboratories with the capacity to monitor ART according to national/international guidelines; The percent of health facilities with record keeping system for monitoring HIV/AIDS care and support; The existence of national monitoring and evaluation capacity for HIV/AIDS care and support program.

To track the multiple levels of care and support, multiple measurement methods are proposed for both monitoring and evaluation. These includes: National program report review; interviews; record review; Health Facility surveys; Household surveys; and special studies (Marconi, 2004)

Assessing the readiness of health facilities to deliver HIV/AIDS services including HAART is a study done in Kwazulu Natal with the goal of assessing the readiness of Kwazulu Natal public sector health clinic in to deliver antiretroviral therapy to large number of people. The study identified the most important critical components (equipment, supplies, staff skills) of the health system that need to be strengthened to provide ARV widely. The methodology used in this study consists of observations, interviews. They examined whether facility providers attended a course on PMTCT, HIV/AIDS. The tool for data collection consists of observation of clients receiving services and interview with care providers. Among the components examined were whether facility providers attended a course on PMTCT, HIV/AIDS testing, and treatment of opportunistic infections, post -exposure prophylaxis, and treatment of

HIV/AIDS with ARVS. Further they examined the availability of relevant diagnostic tests, basic equipment, and community based support group for PLWHA, and adequate supervision. The results indicate that higher-level facilities are more prepared to deliver HIV/AIDS services and ARVS. However substantial capacity exists at all level to deliver a range of HIV services including: counselling and HIV testing, PMTC, with nevirapine, control of opportunistic infections, referral of HIV positive people to community support, and system in place to assist ARV patient with adherence. They concluded that it is not possible to immediately reach all HIV infected persons with ARV treatment, with the existing infrastructure; therefore addition investment needed (Fisher et al, 2004)

Assessing the impact of HIV/AIDS on health services capacity at primary level is a research with a goal to assess the impact of HIV/AIDS and intervention programme on health services delivery at the primary level with the specific aim of conducting a rapid situational assessment of the quality and management of key HIV services and to review the existing practices with respect to staffing allocation. The methodology used in this study is in depth study of two different PHC sites, which already each cope with dramatic impacts of HIV/AIDS on service delivery and which in future will be expected to provide expanded services. The study has tools and methodology aimed at assist planners and managers at the district level to read and understand the environment within which they will have to deliver services, to assess capacity and needs and to develop appropriate responses. The study based on the hypothesis that health

services need to put in place measures to strengthen human resource and other system in order to strengthen HIV/AIDS services
(Lehman, 2004)

Preparedness for delivery of HIV treatment and care services is a study done among care facilities in the Northern Zone of Tanzania. A standardized questionnaire was used to gather information about human capacity, clinical facilities and services, and laboratory capacity. In this study they found that there was a lack of trained staff to manage ART, and VCT services. This results in sub optimal diagnosis, treatment, and prevention of HIV/AIDS. Cotrimoxazole prophylaxis was adequate, but isoniazid was under utilized for treating latent tuberculosis. Laboratory facilities for ART monitoring were inadequate, ART and PMTCT had limited coverage in the Northern Zone (Kinabo. G, 2004)

For most if not all, health services in developing countries the increased demand for services is not matched with extra resources and the opportunity cost can very well imply a lower level of health services for all patients. The deterioration of health services caused by the increased demand is not appropriately addressed by the governments in the National Strategic Plans and by donors supporting local government in the fight of HIV/AIDS (Alban, 2001)

2.4 Laboratory tests and equipments

Before initiating therapy in any patients the following laboratory tests should be performed: complete blood complete blood count; serum transminase; creatinine and serum profile; CD4 T-lympocyte count; performing chest x-ray; hepatitis C serology etc. It is also necessary to educate the patients and family members about antiretoviral therapy

(MOH, 2004)

In order for Tanzania government to treat 400,000 HIV positive patient in the next five years will require the program to counsel and test 20 million previously untested individuals. Current capacity through existing VCT centres is less than 1 million counselling session per year. Based on these figures the program will have to increase its counselling and testing capacity twenty fold every year for the next five years. Compounding the issue of service capacity is the inability of the program to manage significantly increased quantities of HIV test kits to test 5 million new individual every year. A recent national stock status survey of key health commodities found that often there was only one type of HIV kit in stock. At least two different types of HIV test kit are required to accurately inform a client of their HIV positive status. Without attention to the long -term security of HIV/AIDS commodities and the system to manage them, Tanzania will not meet its stated goal and will leave thousands of people living with HIV/AIDS without the services and commodities that they so desperately need. (Snow, 2003)

HIV testing and counselling is now recognized as a priority in National HIV/AIDS programs because it forms the gateway to HIV/AIDS prevention, care, treatment and support interventions. In order to ensure access to HIV testing for large population and to facilitate access to ARV treatment in the context of the WHO " 3x5" initiative radical, scaling up of HIV testing and counselling services is urgently required (WHO, 2004b).

Advanced in technology have led to the development of a wide variety of rapid HIV test. Rapid HIV test are suitable for the performance of single test, are easy to use and can be carried out by any health care worker who has received appropriate training. Most rapid HIV test kit can be stored at room temperature. In countries with limited laboratory infrastructure the use of HIV rapid test algorithm has been more feasible and effective as ELISA, and Western blot algorithms. Rapid test used for testing and counselling program should have the following characteristics: High sensitivity of >99%, high specificity > 99% and high reproducibility >98% (WHO, 2004b)

Until the development of the rapid test in 1990 the diagnosis of HIV infection was made by using ELISA to detect antibodies against HIV. ELISA test is confirmed by means of Western blot assay. There are however, essential requirements for ensuring that ELISA can be performed reliably. Laboratory equipment and disposables have to be available, constant supplies of electricity and clean water is necessary and regular maintenance of equipment is required.

The validity of ELISA result depends on skilled technicians who can operate the equipment, prepare the reagents and pipette accurately (WHO, 2004b).

In children > 18 months of age, HIV infection may be diagnosed on the basis of a positive HIV antibody test (ELISA) and a confirmatory test such as Western blot. Indeterminate Western blot result should be retested as son as possible. If the Western blot result remains indeterminate, specific test for HIV-1 should be performed (WHO, 2004b).

Children born to HIV antibody- positive women are born with passively acquired maternal anti-HIV immunoglobulin (IgG). If the child is not HIV infected, the maternal IgG gradually decreases and is usually unmeasurable by 7 to 10 months of age but can sometimes persists as long as 18 months, making test uninterpretable. Therefore in children <18 months of age, use of assay for virus or viral components is necessary. Therefore children < 18 months of age and born to an HIV- infected mother should have testing for HIV using HIV DNA PCR or HIV culture (WHO, 2001).

The CD4+ T lymphocyte also known as T helper cell (CD4+ t-cell), are co-ordinator of the body's immune response. Hence the CD4+ T-cell count is frequently monitored to assess immune suppression and disease progression in HIV infected patients. Moreover, changes in the CD4+ T cell count are important indicator of the response of ART. At present, the CD4+ T cell count remains the most important key surrogate marker for initiation and monitoring

ART and a measure of effectiveness of treatment in clinical trial evaluation (Kovit et al, 2005).

In scaling up access to HAART in developing countries, there have been a number of voices pointing to lack of capacity to deliver the drugs. Often mentioned are the small number of health facilities, the precarious state of infrastructure and equipment as well as the lack of health professionals

(Oliviera – Cruz, 1999)

2.5 Antiretroviral drugs and Pharmacy services

Countries are encouraged to use public health approach to facilitate the scale-up of ARV in resource- limited settings as delineated in the WHO 3- by –5 plan. ART programmes should be developed which can reach as many people as possible that are in need of therapy and requires that ARV treatment be standardized. It is suggested that countries select first –line regimen and a limited number of second-line regimens (WHO, 2003).

A discontinuation in drug supply increases the risk of treatment failure. This is not only detrimental to the patient but also facilitate the emergence of drug resistant strains of the virus. The challenge at national level is to build strong drug procurement and distribution systems, avoiding supply interruptions as well as leakages of drugs and ensuring drug quality. At the project level logistic are also critical, including mechanism to ensure safe drug storage and distribution

(CHGA, 2004)

There is a real danger that the benefits of drug availability could be undone by ineffective distribution and misuse both of which could lead to the development of drug resistant viruses and withdrawal of donor funding. Therefore, to maximize the benefit of ARV drug regimens, countries have to urgently make concrete plans to scale –up their treatment programs, establish or strengthen their national drug procurement and distribution policies, develop quality control mechanisms and engage in the relevant operational research. (Wasunna et al, 2004)

The use of single drugs treatment is not recommended. A triple therapy consists of 2NRTI and 1 PI or 2NRTI and 1NNRTI is recommended. The Ministry of Health recommends four different combinations of 1st line drugs for adult and adolescents. The combination will be used according to indications and contraindications that govern the use of ARVs to minimize side effects and drug – drug interaction. The combination are; 1.Stavudine (d4T) +Lamivudine (3TC)+Nevirapine (NVP); 2.Zidovudine (AZT)+Lamivudine (3TC)+Nevirapine (NPV) 3.Stavudine (d4T)+Lamivudine (3TC)+Efavirenz (EFV) 4.Zidovudine (AZT)+Lamivudine (3TC) +Efavirenz (EFV). The 2nd line antiretroviral therapy includes Abacavir/ Lopinavir/ Ritonavir or Abacavir/Saquinavir/Ritonaviry .The recommended 1st line ARV regimens for infants and under children are: AZT+3TC+NVP; For children who are 3 years old or more recommended: AZT+3TC+EFV or NVP; d4T is an alternative for AZT in cases of anaemia. All pregnant women who are HIV positive can be prescribed Nevirapine and advised to take it when labour starts. Women who deliver at home should be advised to

bring their babies for Nevirapine administration within 72 hours of delivery. (MOH, 2004)

2.6 Recording and reporting system

Data is a useful tool in measuring the outcome. It provides information with a high level of clinical detail and is provided in a sufficiently clear manner that providers and managers can know what process must be changed. Challenges in quality measurement include the development of data system that will make the measurement of health care quality as valid and efficient as possible (Diagnosis, 1998).

The current health management system, which is designed to monitor the essential health package, is unable to support the monitoring and reporting requirement in an expanded response to HIV/AIDS. Therefore, while it is proposed that existing data source will be integrated in the monitoring and evaluation system. It is foreseen to also develop new data collection system (Hutton, 2004).

The problem in Health care system is that the majority of treatment delivery is through the private sector. There is no accountability in the private sector and no service quality and monitoring. Nor is there any national system for counting the numbers of people on treatment (Gilks, 2004)

CHAPTER 3

3.0 METHODOLOGY

3.1 Description of study area:

The study was conducted in Dar es Salaam region. This is the largest city in Tanzania and is the main business centre in the country. The Dar es Salaam region is located on the east cost of Tanzania and includes the municipalities of Ilala, Temeke and Kinondoni (which constitute the city of Dar es Salaam). It borders on the Indian Ocean to the east and on all other sides the cost region. In 2002, the estimated population of Dar es Salaam according to national census was 2,487,288.

Dar es Salaam is one of the most affected regions by HIV/AIDS in the country. It was reported that about 11% of adult are infected by HIV/AIDS (TACAIDS, 2004).

Dar es Salaam population receive health care services from public, private for profit, and voluntary agency health facilities. There are 4 government hospitals, 5 health centres, & 66 dispensaries; among private/voluntary there are 17 hospitals, 13 health centres and 314 dispensaries. There is also one military hospital.

3.2 Study design:

A cross sectional descriptive study was conducted from May to July 2005 with the general objective of assessing the capacity of health facilities in providing HAART and comprehensive care for PLWHA.

3.3 Sample size and sampling

A list of health facilities was obtained from City Medical Officer of Health (CMOH) office and a list of health facilities designated to provide ART was obtained from the Ministry of Health. All the hospitals and health centres formed a sampling frame of our study (see Appendix 2). A 25% –30% recommended eligible health facility (Kielman, 1995) was selected. In Dar es Salaam region there were six health facilities designated by the Ministry of Health to provide antiretroviral therapy since October 2004. All six-health facilities were included in the study purposively. In order to reach the calculated sample size the health facilities were selected at random including the health facilities designated by Ministry of Health since May 2005, by using a systematic sampling method.

Sample size calculation-for number of health facilities to be studied

The total number of eligible health facilities was 40

$N = 30\ \% \times 40$

$N = 12$

Where N is the sample size

3.4 Study population:

The study population included ten health facilities designated by MOH in delivering ART. It also included two of the health facilities that were not designated to provide ARVs. The six health facilities, that were selected purposively, included PASADA (Pastoral Activities and Services for people with HIV/AIDS in Dar es Salaam Archdiocese). PASADA is a voluntary service agency operated by the Roman Catholic Archdiocese, which provides care, prevention, education and treatment for the poor living with HIV/AIDS in Dar es Salaam region regardless of their religion affiliation. Other facilities included Muhimbili National Hospital (MNH), Municipal hospitals (Amana, Mwananyamala and Temeke), and Lugalo military hospital. The health facilities selected randomly included Aghakan hospital, St Bernad hospital, Mount Ukombozi hospital, Tanzania Occupational Health (TOH) hospital, Kigamboni health centre and University of Dar es Salaam health centre (UDSM). The studied health facilities are shown in Dar es Salaam map (appendices 3)

3.5 Data collection technique and procedure

Checklist was used to observe the availability of equipments, drugs, guidelines and human resources. It was also used to guide interview with the appropriate staff member of the studied health facilities.

The minimum set of standards to initiate antiretroviral and key indicators in the treatment of HIV/AIDS was included in the checklist.

Number of people interviewed in the study differed from one facility to another. Medical Officers in-charges of seven facilities were interviewed and provided information on the overview of the facility and on Human Resource.

In the Municipal Hospitals Health Secretary were interviewed and provided information on Human Resource and training.

The in- charges of clinical services in two of the facilities were interviewed and provided information on the progress of the ARV program.

In all health facilities designated to provide ARVs, the in-charges of the program were able to provide information on HIV/AIDS care and treatment services and on Health Information System. They also provided information on the Care and Treatment Team.

In two of the studied facilities in-charges of Human Resource were interviewed and provided information on Human Resource capacity.

In all studied facilities laboratory in-charges were interviewed and provided information on laboratory equipment, laboratory services and also on Human Resource.

Pharmacy in-charges in twelve health facilities were included in the study and provided information on drugs, pharmacy services and on Human Resource.

In five of the studied facilities nurse in-charges were interviewed and provided information on Human Resource and training.

VCT counsellors in all health facilities were interviewed and provided information on VCT services.

3.6 Data management and analysis

Data collected in the field were cleaned, compiled and processed. Secondary data cleaning was done during coding and data entry. By using EPI-6 info and Microsoft Excel programmers, data processing was performed.

3.7 Limitation of the Study:

3.7.1 Availability of records

Some of the records upon which assessment could have done were not readily available. For instance it was difficult to get information on human resources and training in many studied facilities. The information was not computerized and was not available in one central point.

3.7.2 Bureaucracy

There was a delay in getting permission to assess some of the studied Facilities. Because of a long time follow-up the study budget was increased.

3.8 Ethical Consideration

The request for ethical clearance was secured and approved by Muhimbili University College of Health Science Academic Board. Similarly a request for permission from regional and municipality authority was sought. Thereafter, a request for permission from all studied health facilities was requested.

CHAPTER 4

4.0 RESULTS

4.1 DESCRIPTION OF HEALTH FACILITIES

A total of 12 health facilities were assessed over a period of two months. Table 1 shows facilities surveyed by location, type, and ownership. About 25% of the facilities were located in Ilala Municipal, 33.3% Temeke and 41.7% located in Kinondoni Municipal. Data were collected in 9 hospitals and 3 health centers. The government owns six of the surveyed health facilities, and six were non- government facilities. Facilities under the government included the central government (Muhimbili National hospital), Military hospital (Lugalo), and local government health facilities (Amana, Temeke, Mwananyamala and Kigamboni). Non-governmental facilities included Voluntary Agency (PASADA) and private for profit (Aghakan,TOH, St Bernard, Mount Ukombozi and UDSM).

Table 1:Description of sampled Health Facilities according to type, location and ownership.

Location	Level of Facility	Government	Private	Voluntary Agency	Military	Total
ILALA MUNICIPAL	Hospital	1	2	0	0	3
	Health Centre	0	0	0	0	0
KINONDONI MUNICIPAL	Hospital	2	1	1	1	4
	Health Centre	0	1	0	0	1
TEMEKE MUNICIPAL	Hospital	1	1	0	0	3
	Health Centre	1	0	0	0	1
Total		5	5	1	1	12

Table 2 shows the number of facilities by ownership that has been designated to provide ARV from October 2004 and from May 2005. The study included all facilities that were designated in October 2004 and although 13 more Facilities were designated in May 2005, only 4 of the designated facilities were selected at random.

Table 2:Health Facilities designated to provide Antiretroviral Therapy.

	Government	**Private**	**Voluntary**	**Military**	**Total**
Designated since October 2004	4	0	1	1	6
Designated since May 2005	0	4	0	0	4
Total	4	4	1	1	10

4.2 HUMAN RESOURCE AND TRAINING

In general, a relatively high percentage of facilities designated to provide ARVs from October 2004 had staffs in delivering antiretroviral therapy according to the minimum criteria recommended. However, one third (2/6) of Health Facilities did not have social workers, and two thirds (4/6) did not have data clerk. Other cadres were present in all facilities at different proportions (Table 3)

Table 3: Human resource in HIV care and treatment for Health Facilities Designated by MOH since October 2004

Category	Amana	Lugalo	Muhimbili	PASADA	Temeke	M/nyamala	Minimum criteria
Medical staff (Specialist,MO,AMO,CO)	6	8	19	11	6	5	2
Nurse staff (NO,NM)	7	20	8	20	4	9	1
Pharmacy personnel (Pharmacist, Pharmaceutial Tech)	3	4	6	1	1	2	1
Laboratory personnel (Technologist, technician)	2	13	3	4	2	3	1
Social workers	0	2	2	5	0	1	-
Data clerk	0	0	1	1	0	0	1

The study found that for the facilities designated to provide antiretrovirals since October 2005 not all the staffs attended training. In Amana, MNH, PASADA, and Temeke hospitals, all the staffs providing HIV care and treatment were trained. However, the number of staff trained in Mwananyamala and Lugalo hospitals was lower, about 70% staffs were trained at Mwananyamala hospital and 78.7% at Lugalo hospital (Table 4).

Table 4: Percentage of staffs trained to provide HIV care and treatment for those facilities designated since October 2004

Health Facility	Number of providers	Number of providers trained	Percent of trained
Amana	18	18	100%
Lugalo	47	37	78.7%
Muhimbili	39	39	100%
Mwananyamala	20	14	70%
Pasada	42	42	100%
Temeke	14	14	100%

Table 5 presents different carders in providing HIV/AIDS care and treatment services for the facilities designated from May 2005. Most carders met the recommended minimum criteria but all the health facilities were lacking social workers and data clerks. St Bernard and TOH hospitals had higher number of staffs compared to Aghakan hospital and University of Dar es salaam health centre.

Table 5: Number of different cadres providing care and treatment for those facilities designated to provide ARVs by MOH since May 2005

Category	Aghakan	UDSM	St Bernard	TOH	Minimum criteria
Medical staff (specialist,MO,AMO,CO)	3	5	6	20	2
Nurse staff (NO,NM)	4	4	10	8	1
Pharmacy personnel (Pharmacist, Pharmaceutical tech)	1	1	1	2	1
Laboratory Personnel (technologist, tech)	1	2	4	4	1
Social worker	0	0	0	0	-
Data clerk	0	0	0	0	1

Table 6 shows that half (2) of the health facilities designated in May 2005 had all staffs trained to provide HIV/AIDS care and treatment. However, the percentage of staffs trained in St Bernard and TOH ranges from 18.2% to 44%.

Table 6: Percentage of staffs trained on HIV care and treatment for those facilities designated since May 2005

Category	Number Provide HIV care and treatment	Number Trained on HIV care and treatment	Percent Trained
Aghakan	9	9	100%
UDSM	12	12	100%
St Bernard	22	4	18.2%
TOH	34	15	44%

As indicated in Table 7 all the facilities had medical staffs, nurse staffs, and laboratory staffs according to the minimum criteria recommended although these two facilities were not designated to deliver ARVs. However, all health facilities did not have social workers and data clerks. Additionally, one of the facilities did not have pharmacy staffs.

Table 7: Number of different cadres providing HIV care for those Facilities that were not designated to deliver ARVs

Category	Kigamboni	Mount Ukombozi	Minimum criteria recommended
Medical staffs (Specialst,MO,AMO,CO)	14	9	2
Nurse staffs (NO,NM)	11	7	1
Pharmacy staff (Pharmacist,Pharmaceutical tech)	2	0	1
Laboratory staffs (technologist, technician)	2	5	1
Social worker	0	0	-
Data clerk	0	0	1

In table 8, the findings show that Kigamboni Health Centre had only 18.4% of staffs trained on HIV care and treatment. Further, the findings show that in Mount Ukombozi hospital staffs were not trained on HIV care and treatment.

Table 8: Percentage of staffs trained on HIV care and treatment for those Facilities that were not designated.

Health Facility	Number provide HIV care and treatment	Trained on HIV care and treatment	Percent trained
Kigamboni	38	7	18.4%
Mount Ukombozi	24	0	0%

4.3 AVAILABILITY OF GUIDELINES, EQUIPMENTS AND DRUGS

4.3.1 Availability of drugs

Table 9 shows that, the availability of first line antiretroviral in studied health facilities ranges from 33.3% to 91.7%. Zidovudine tablet was available only in four health facilities. Triomune 40 and Nevirapine were available in almost all health facilities (91.7%)

Table 9: Percentage of Health Facilities with first line antiretroviral drugs.

Antiretrovirals	Health Facilities n=12	Percentage of H/F with ARVs
Zidovudine 100mg(AZT)	4	33.3%
Lamivudine 150mg (3TC)	9	75.0%
Stavudine 30mg(d4T)	10	83.3%
Stavudine 40mg(4dT)	10	83.3%
Combivir/Duovir(3TC150mg/AZT300mg)	8	66.7%
Nevirapine 200mg (NVP)	11	91.7%
Triomune 30	10	83.3%
Triomune 40	11	91.7%
Zidovudine 50mg/ml	10	83.3%
Lamivudine 50mg/ml	10	83.3%
Nevirapine 10mg/ml	10	83.3%
Efavirenz 200mg (EFV)	10	83.3%
Efavirenz 600mg (EFV)	10	83.3%

As shown in table 10 most of health facilities did not have second line regimen. Nelfinavir 250mg and Nelfinavir 50mg/ml were lacking in all studied health facilities. Only one health facility stocked Didanosine 25mg, Didanosine 100mg, Didanosine 2mg/ml powder, Abacavir 300mg, Abacavir 20mkg/ml, Kaletra and Indinavir. Ritonavir 100mg and Saquinavir were found in two of the studied health facilities.

Table 10: Percentage of Health Facilities with second line antiretroviral drugs

Antiretrovirals	Health Facilities n=12	Percent of H/F with ARVs
Didanosine 25mg (ddI)	1	8.3%
Abacavir 300mg (ABC)	1	8.3%
Trizivir (3TC/AZT/ABC)	2	16.7%
Didanosine 100mg	1	8.3%
Saquinavir 200mg	2	16.7%
Indinavir(IDV)	1	8.3%
Nelfinavir 250mg(NFV)	0	0%
Nelfinavir 50mg/ml powder	0	0%
Abacavir 20mg/ml	1	8.3%
Ritonavir 100mg (RTV)	2	16.7%
Lopinavir/Ritonavir(Kaletra)	1	8.3%
Didanosine 2mg/ml powder	1	8.3%

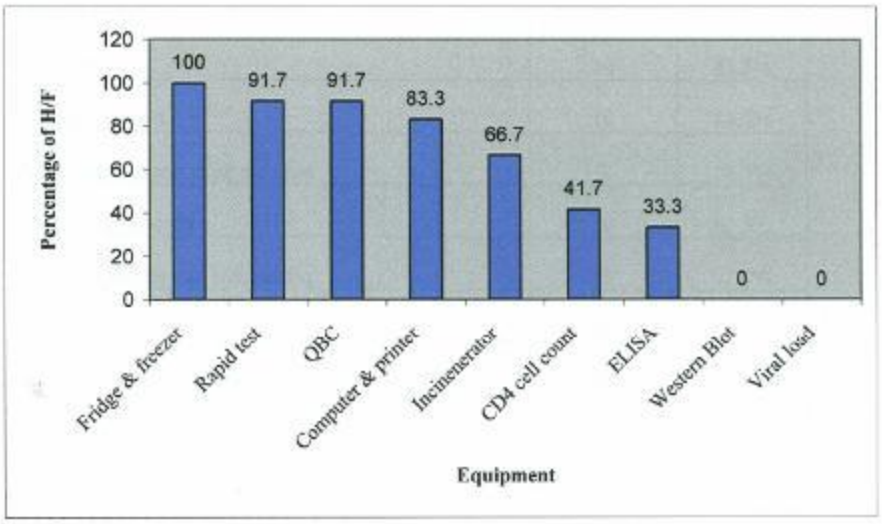
4.3.2 Availability of equipment

Figure 1 shows that (91.7%) of facilities had Rapid test kit for HIV testing and QBC equipment for blood count. More than half of facilities surveyed did not have FACSCount/FACSClibur for CD4 cell count.

Incinerator which is necessary for hospital waste disposal were found in two third (66.7%) of the facilities.

All Health Facilities did not have Rocking Platform for Western Blot and equipment for viral load. Also only (33.3%) of the facilities had equipment for ELISA test.

Figure 1: Percentage of Facilities with Equipment



4.3.3 Availability of guidelines

About 91.7% of the facilities had the National guidelines on PMTCT and Voluntary Testing and Counselling, 83.3% had guidelines on Laboratory services, ARV treatment, TB control, STI management procedure, PEP and occupational exposure to HIV/AIDS (Table 11)

Table 11: Percentage of Health Facilities with MOH guidelines

Type of guidelines	Health Facilities n=12	Percent of H/F with guidelines
National guidelines for clinical management for HIV/AIDS	9	75.0%
National guideline on PMTCT	11	91.7%
ARV treatment	10	83.3%
TB control	10	83.3%
STI management	10	83.3%
Monitoring adverse drug reaction	7	58.3%
HIV testing procedure	10	83.3%
Voluntary testing and counselling	11	91.7%
PEP	10	83.3%
Occupational exposure to HIV/AIDS	10	83.3%
HIV/AIDS surveillance	9	75.0%
National guidelines on Home Based Care	9	75%
National standard guideline for health laboratory services	10	83.3%
Guidelines on pharmacy services	9	75.0%
Guideline on disposal of expired drugs	0	0%

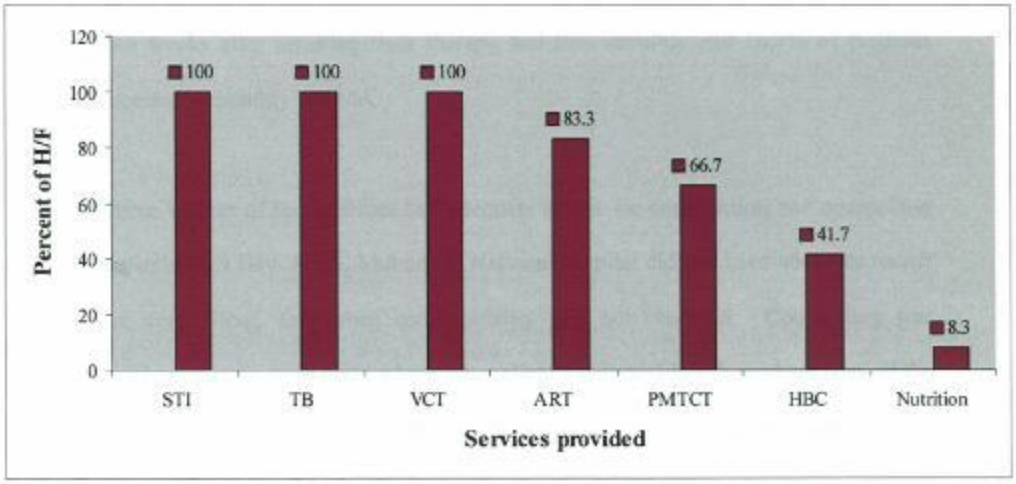
Further table 11 shows that 75% of the studied health facilities had guidelines on Pharmacy services, Home Based Care and HIV/AIDS Surveillance. About 58.3% had guidelines on monitoring adverse drug reactions. Guideline on disposal of expired drugs was not available in all health facilities.

4.4 SERVICES PROVIDED

4.4.1 HIV Care and Treatment services

Figure 2 show that all health facilities had STI, VCT and TB services. About 83.3% of the facilities delivered antiretroviral therapy; 66.7% of the facilities provided PMTCT services. It was noted that only 41.7% of the facility provide Home Based Care services and 8.3% provide nutrition services.

Figure 2: Percentage of Health Facilities with HIV care and treatment services



Nearly all facilities (91.7%) were providing cotrimoxazole as prophylaxis for opportunistic infections. But it was found that only one Facility was providing Isoniazid drug for TB prophylaxis.

Seventy five percent (75%) of the surveyed facilities used WHO stages and CD4 cell count as the criteria for starting antiretroviral therapy. All health facilities, which were designated to deliver antiretroviral therapy, used an eligibility protocol before starting antiretroviral therapy. All ten facilities performed CD4 count, FBP, Liver function and kidney function tests before initiating antiretrovirals. However, no health facility performed viral load test before initiating ARVs.

About 83.3% of facilities monitored patients who were on ARVs at an interval of two weeks after initiating their therapy and then monthly and 16.7% of facilities monitor in monthly interval.

Three quarter of the facilities had adequate rooms for consultation and counselling patients with HIV/AIDS. Muhimbili National hospital did not have adequate rooms for counselling, and hence confidentiality was not observed. Counselling was conducted in an open place where other client's wait and health workers pass all the time. Clients and counsellors talk in low voice so that other people could not hear them. The three Municipal hospitals and PASADA had adequate rooms for consultation and counselling. Although in the municipal hospitals patients were overcrowded over the corridors, but the rooms had confidentiality environment.

4.4.2 Pharmacy services

The study found that the disposal of expired drugs were improper done. About 41.7% of the facilities did not explain clearly what they did with expired drugs. Almost 33.3% of the facilities said that they burnt the expired drugs in the hospital incinerator. About 16.7% of the facilities informed the Tanzania Food and Drug Authority the issue of expired drugs. One health facility usually forms a Board to discuss the matter.

Table 12 presents the pharmacy services in delivering antiretroviral therapy. During the study it was noted that not all the facilities had adequate space for the proper storage of drugs (only 66.7% had proper place)

Table 12: Percentage of Facilities with Pharmacy services

Activities	Health Facilities n=12	Percent of H/F
Place for proper storage of ARVs	8	66.7%
Working refrigerator	10	83.3%
Working air conditioner	10	83.3%
Suitable private place for counselling patient on the use of ARVs	7	58.3%
Counsel patients on the use of antiretrovirals	11	91.7%

Further table 12 shows that, only 58.3% of the facilities had a suitable private place for counselling patients on the use and adherence of antiretrovirals. Amana municipal hospital and PASADA had big and suitable private places. In 41.7% of the health facilities there were no rooms for this purpose. In Muhimbili National Hospital and Mwananyamala Hospital, the HIV/AIDS patients took their medicines over the counter.

It was also found that almost all facilities (91.7%) counselled patients on the use of antiretrovirals, however, in most health facilities the procedure was not done in the dispensing area.

Two of the health facilities, which were designated to deliver antiretrovirals, did not have a refrigerator. Antiretrovirals, which needed refrigeration, were kept in a fridge found in the laboratory. Additionally, it was found that, there was no working air conditioner in two of the health facilities.

4.4.3 Laboratory services

Table 13 provides an indication of the tests available at the facilities. Most of the facilities were able to conduct HIV rapid tests, Liver function, kidney function, VDRL, Sputum smear, FBP and Pregnancy tests. Facilities were less able to perform CD4 cell count (only 41.7% performed) and ELISA tests (16.7%). Many facilities, which did not perform CD4, cell count, reported to send the blood sample to Muhimbili National Hospital.

Table 13: Percentage of facilities with Laboratory tests available.

Laboratory tests	Health Facilities n=12	Percent of H/F with tests
HIV PCR (For Viral load)	0	0%
Western Blot	0	0%
Drug resistance	0	0%
ELISA	2	33.3%
FBP	12	100%
CD4	5	41.7%
Liver function	10	83.3%
Kidney function	10	83.3%
VDRL	10	83.3%
Sputum smear	11	91.7%
Pregnancy test	12	100%
Rapid	11	91.7%

The three Municipal hospitals also had FACSount/FACSClibur (CD4 cell count). Temeke and Amana hospitals were already performing CD4 cell count while Mwananyamala hospital expected to start soon.

In all twelve assessed facilities the following tests were not available: Viral load tests, Drug resistance tests, HIV PCR tests and Rocking Platform for Western Blot.

Results of HIV testing were available the same day for two thirds (66.7%) of the facilities. Other 8.3% health facilities reported to give results in the next day, and 16.7% within a week. Reasons of delaying results varied among Health Facilities. Muhimbili National hospital did not give results immediately because the laboratory was relatively busy with a lot of tests. PASADA did not give the result immediately because they thought it is good to prepare the patients before giving him/her the result.

4.5 RECORDING AND REPORTING SYSTEM

Table 14 shows the recording and reporting system. Nearly all facilities (91.7%) had clinical records for all patients. About 75% of health facilities were using Ministry of Health clinical AIDS surveillance form.

Table 14: Facilities with recording and reporting system

Activity	Health Facilities n=12	Percent of H/F with report
Have clinical records for all patients	11	91.7%
Use clinical AIDS Surveillance form	9	75.0%
Record the number of patients on ARVs	8	66.7%
Use ledger, bin card and computer in monitoring drug stock	4	33.3%
Use ledger and bin card in monitoring drug	1	8.3%
Use only ledger in monitoring drug stocks	4	33.3%
Use only computer in monitoring drug stock	2	16.7%
Facilities records ARVs dispensed	9	75.0%
Send data to NACP	10	83.3%
Send data to DMO	6	50%
Send data to MDH	3	25%
Send data every month	10	83.3%

Three quarter of the facilities (75%) had a system of recording number of patients who are on antiretroviral therapy. In recording number of patients who are on

antiretroviral treatment different methods were used some of the facilities used names and other numbers. For example the Municipal hospitals used identification numbers to record patients who were on treatment.

Drugs have been monitored using ledger books, bin cards, and register books and computers as shown in table 14 above.

About 83.3% of the facilities send data every month to the NACP. Half of the health facilities send data every month to the DMO office. In addition, the Municipal hospitals send data every day to the HIV/AIDS care and treatment program, which collaborated with Muhimbili University of Health Science, Dar es Salaam City Council and Harvard School of Public Health (MDH)

4.6 PATIENTS ON ARV TREATMENT

It is encouraging that all health facilities in this study, which delivered antiretroviral therapy, used triple therapy regimen as recommended.

Not all surveyed facilities were able to give information about patients who were on ARV treatment. Therefore, the data on table 15 16, 17, 18 and 19 did not includes all twelve studied health facilities

Table 15 shows the number of HIV/AIDS patients registered at the facility and percentage of HIV/AIDS patients who were on ARV treatment. The number of HIV/AIDS patients registered in the studied health facilities was between 2 and 14,000. The number of HIV/AIDS patients who were on ARV treatment ranged from 1.7% to 100%. Kigamboni health centre had about 46 sero-positive patients, but did not give ARV treatment. At UDSM health centre only two patients were registered, and all of them were on ARVs. Number of HIV/AIDS patients registered at PASADA voluntary agency was higher than in other facilities, about 14,000. However, only 1.7% HIV/AIDS patients registered in PASADA was on ARV treatment.

Table 15: Percentage of HIV/AIDS patients who are on antiretroviral treatment n=10

Name of Facility	Number of patients registered	Patients on ARV treatment	Percent of patients on ARV treatment
UDSM health centre	2	2	100%
Kigamboni health centre	46		
St Bernard hospital	92	58	63%
TOH hospital	94	40	42.6%
Temeke hospital	615	332	54%
Lugalo hospital	847	437	51.6%
Amana hospital	985	460	46.7%
Mwananyamala hospital	1048	444	42.4%
Muhimbili National hospital	3679	2223	60.4%
Pasada Voluntary Agency	14000	240	1.7%

Table 16 shows the variation of patients who were eligible to start antiretrovirals in different health facilities. The study revealed that there is a big difference between facilities on the percent of patients who were eligible to start antiretrovirals. About 1.7% of patients in PASADA were eligible to start antiretrovirals; However, in other health facilities eligibility ranged from 53.1% to 75.7%.

Table 16: Percentage of patients who were eligible to start ARV therapy

n=5

Name of Facility	Number of patients registered	Number eligible to start ARVs	Percent eligible to start ARV's
Temeke hospital	615	466	75.7%
Lugalo hospital	847	450	53.1%
Amana hospital	985	672	68.2%
Mwananyamala hospital	1048	691	65.9%
PASADA	14000	240	1.7%

Table 17 shows that the three Municipal Hospitals (Temeke, Amana, Mwananyamala) had large number of patients who were eligible to start antiretrovirals but the drugs were not enough. All eligible HIV/AIDS patients in PASADA Voluntary Agency and 97% of eligible patients in Lugalo hospital started antiretroviral treatment.

Table 17: Percentage of HIV/AIDS patients who were eligible and started ARVs

n=5

Health Facility	Number eligible to start ARVs	Number eligible and started ARVs	Percent started ARVs
Temeke hospital	466	332	71.2%
Lugalo hospital	450	437	97%
Amana hospital	672	460	68.5%
Mwananyamala hospital	91	444	64.3%
PASADA	240	240	100%

The percentage of patients who were lost for follow -up for more than three months ranged from 0 to 7.3% as shown in Table 18. PASADA, which had a good Home Based Care program, had no patients who had been lost for follow up.

Table 18: Percentage of HIV/AIDS patients who were lost to follow –up to more than three months

n=6

Name of Facility	Number of patients registered	Number of patients lost	Percent of patients lost
Temeke Hospital	342	10	2.9%
Lugalo Hospital	439	2	0.5%
Amana Hospital	496	36	7.3%
Mwananyamala Hospital	473	29	6.1%
Muhimbili Hospital	2322	99	4.3%
PASADA	14000	0	0%

Further the study shows that, the percentage of HIV/AIDS patients who had died on ARVs ranges from 0.13% to 7.7% as presented on table 19. All private facilities were not able to provide data.

Table 19: Percentage of patients died on ARVs

n=6

Name of Facility	Patients on ART	Patients died on ART	Percent of patients died on ART
Temeke hospital	332	22	6.6%
Lugalo hospital	437	32	7.3%
Amana hospital	460	14	3.0%
Mwananyamala hospital	444	34	7.7%
Muhimbili hospital	2223	3	0.13%
PASADA	240	9	3.8%

CHAPTER 5

5.0 DISCUSSION

5.1 Human resource and training

Essentially, all health facilities designated by the MOH to deliver ART had a prescriber, an ARV evaluator, a counsellor, a laboratory technician and a pharmaceutical technician, according to the MOH minimum criteria. However, the minimum criteria were not met for data clerk in 8(80%) of the ten health facilities. For the facilities designated May 2005 the findings showed that, St Bernard and TOH hospitals had higher number of staffs compared to Aghakan and UDSM because the former did not yet formed the care and treatment team and all staffs were responsible to provide HIV care and treatment services. Like the designated health facilities, the facilities that were not designated had a good number of cadres, which met the MOH minimum criteria too. However, one health facility did neither have pharmacist nor pharmaceutical technician. In consistent to these findings, Kinabo et al reports that, there is a lack of trained personnel to manage ART in Northern zone of Tanzania.

National standards need to be examined and explicitly made relevant to the local situation (Pencheon 2001). The minimum standard set by MOH does not reflect the real situation or demand on the ground. The patients registered at Temeke, Mwananyamala, Amana, Lugalo, Muhimbili, and PASADA facilities are ranging from 615 to 14000 per health facility; this indicate how the demand for health

personnel was high. The minimum criteria given could be subjected to abuse especially profit making facilities. For instance Facilities might employ few staffs according to the minimum criteria but which does not reflect the real demand of the facility.

In supporting to the unmet minimum criteria Oystein et al reports that there are adequate human resources allocated for health care provision in Tanzania according to national standards. Compared to similar countries however Tanzania have a very low availability of health professionals (Oystein, 2004).

The study shows that, for the facilities designated October 2004, one third of the facilities did not have social workers and two third did not have data clerk; For the facilities designated May 2005 and for the facilities that were not designated social workers and data clerks were lacking. According to (Dr R Marlink, 2004); the lack of medical personnel available to staff health facilities in Africa nation has various causes depending on country. In some places this deficit is not because the experts don't exist, but rather that the system cant pay them or doesn't have the position for them. In other places, the experts just don't exist in the number needed.

The study revealed that not all health workers were trained before starting delivering antiretrovirals. The percentage of trained personnel found in these surveyed facilities supported these. For the facilities designated since October 2004, 70% to 100% of the health workers were trained; for the facilities designated May 2005 the percentage was lower, 18.2% to 100%. In order to

create systems for delivering HIV care and treatment to significantly more people, training of personnel is critical (Bruneton, 2001).

The ministry of health guideline recommends that the minimum criteria for health facilities to be accredited must have a dedicated care and treatment team, which has been trained according to, approved national curricula (MOH 2004). However the study found that not all designated facilities meet these criteria.

The study revealed that only few health workers were trained for the facilities that were not designated to deliver ARVs. Although these facilities did not deliver ART, the study found that, other HIV care services that need trained personnel were in place i.e. HIV Voluntary Testing and Counselling, Prevention of Mother to Child Prevention, Home Based Care. The lack of training in these facilities will affect the quality of HIV care services.

Okero et al report that the implementation guideline for ARV therapy in Uganda state that even though ARV drugs may not be directly available or affordable, health providers need to be equipped with regularly updated information that is technically sound and regularly updated (Okero et al 2003)

5.2 Availability of laboratory equipments and tests

Availability of equipments is an important critical component of the health system that needs to be strengthened to provide ART widely. Unfortunately this

study found that there was lack of laboratory equipments in some of the studied facilities.

Although the Ministry of Health guideline state that in order for the referral hospital to initiate or expand antiretroviral therapy HIV DNA PCR equipment should be in place; the study revealed that Muhimbili National hospital did not fulfill these criteria.

The lack of HIV PCR in all studied Facilities implies that viral load test was not performed. For infants < 18 months, initiation of ARV therapy is recommended if the infants has virologically-proven infection. Viral load test is also used to assess the progression of the ARV treatment. Treatment is successful if viral load decreases. Virological condition can therefore indicate when to change therapy. Lack of PCR equipment may therefore affect the quality of HIV testing and ARV treatment and monitoring.

The Ministry of Health recommends Enzyme Linked Immunosorbant Assay (ELISA) equipment as minimum criteria to start antiretrovirals for the regional and referral hospitals. Muhimbili National hospital has fulfilled the criterion. The Municipal hospitals, which are categorized as regional hospitals, two of the three hospitals fulfilled the criteria. Generally, only one third of the surveyed facilities had the equipment. The western blot test, as a confirmatory test also lacked in all studied Health Facilities. It is recommended that in children >18 months of age, HIV infection may be diagnosed on the basis of a positive HIV antibody test ELISA and confirmed test such as Western blot (WHO, 2004). The

lack of ELISA test could also affect the screening of donor blood. ELISA test provide the best means of detecting and eliminating blood donations from HIV - infected donors with high level of probability (Behring, 2004).

In Tanzania CD4 T - lymphocyte is a gold standard method used to determine the time for initiation and change of ARV therapy. Each patient should have a baseline CD4 T –lymphocyte count before initiating treatment. CD4 T – lymphocyte should then be repeated at least every six months (MOH, 2004). This basic equipment was found in only 5(41.7%) of the studied facilities. As mentioned before the health facilities, which were lacking this equipment, sent the blood specimen to Muhimbili National hospital. This process of referring samples from one laboratory to another is costing time and may led to mishandling of the specimen.

Minimum criteria to initiate ART for the regional and referral hospitals include the present of CD4 cell count equipment (MOH, 2004). However, the study found that not all facilities fulfill the criteria.

In all studied facilities the technology to perform drug resistance test was lacking. It is reported that resistance to antiretroviral drugs is common in treated population (Hughes, 1997). Resistance testing can be useful in determining which drugs not to use in treated- experience patients who viral load increasing despite using of antiretroviral or in previously untreated individual who may have infected with HIV resistance to one or more drugs.

Regarding the availability of the mentioned laboratory equipments, the ability of facilities to conduct laboratory tests did not vary widely. In all twelve surveyed facilities, viral load tests, drug resistance tests, HIV PCR, and Western blot test were lacking. Most Facilities were able to conduct HIV rapid test, Liver function, Kidney function, VDRL, Sputum smear, FBP and Pregnancy test. Kinabo et al also report that, in the Northern zone of Tanzania, there is lack of laboratory capacity and capability to manage HIV care and treatment (Kinabo et al, 2004).

The findings show that the time for getting HIV test results did not differ much. In two third of the facilities, the HIV test results were available the same day, one facility had the result next day and two facility within a week. Many setting and counselling sites suggesting that, many people prefer services where they can receive their test result without delay. This is consistent with several studies which reporting that the majority of tested people preferred to receive their results on the day of testing. Same day testing is convenience for people attending HIV testing and counseling site because it reduces traveling time and expenses. In this study one of the studied Facility did not give the patients result the same day because they wanted to prepare the patient well through counseling.

5.3 Pharmacy services and availability of drugs

The availability of antiretrovirals for the scaling-up program is critical. It is recommended that ART programs must have a zero stock out policy, because the

risk of stock outs carries such important public health implications (Snow, 2003). In this study, although all the designated facilities had the first line regimen, the stock was not available for new patients. It was found that about 593 HIV/AIDS patients were waiting for ARVs in the three Municipal hospitals.

The determined low percent of Zidovudine in this study does not indicate the scarcity of the drug. In 66.7% of the studied health facilities Zidovudine was available in the form of Combivir/Duovir (3TC 150mg/AZT 300mg)

Nevirapine and Triomune 40 had the highest frequency. The reason behind is that all designated facilities were providing Nevirapine and in addition Kigamboni health centre stocked Nevirapine for the PMTCT program. Besides this, all designated facilities had Triomune 40, and although Mount Ukombozi hospital was not designated by MOH to deliver ARVs, was prescribing Triomune 40 for HIV/AIDS patients registered in the facility.

Although the Ministry of Health recommends Saquinavir, Ritonavir and Abacavir as an alternative to Efavarenz in TB and HIV co- infection, the study found that Saquinavir, Ritonavir, and Abacavir are scarce commodities in our health facilities. Abacavir is available only in one surveyed health facility. Saquinavir and Ritonavir found only in 2(16.7%) of health facilities. This indicates that the probability of replacing Efavirenz in treatment failure is very little.

The ministry of health recommends that, if clinical assessment indicate the present of treatment failure due to a confirm drug resistance then the best approach is to switch from the first line combination to a completely second line regimen. However, in this study the second line regimen was lacking. The availability of second line regimen ranges from 0% to 16.7%. Even if the first line antiretroviral fails there is no capacity to switch to the second line. In consistent to this finding, MSF reports that the challenge in ARV treatment include the lack of affordable second-line drugs (MSF, 2004)

Additionally, the MOH guideline state that, " The pharmacist must make sure that at all times there is adequate stock for new patients for all required medication (first line and second line)". It is a good plan but the capacity to have a regular accessibility of these commodities is lacking as found in this study or in the study facilities.

During this study it was noted that the storage requirement was not fulfilled in some of the designated facilities. Some of the studied facilities lacked adequate space for the storage of drugs. Additionally, the study found that two of the health facilities, which were designated to deliver antiretrovirals, did not have refrigerator. Besides this 16.7% of the surveyed facilities did not have working air conditioner. Ministry of Health recommends that one of the criteria to start or expand antiretroviral therapy is to have an adequate space to store antiretrovirals. Further the Ministry of Health recommends that the stock must be stored at the appropriate temperature. Drug like Kaletra (Lopinair/Ritonavir), which require

refrigeration must be store in a refrigerator. Inappropriate storage of antiretrovirals might reduce drug efficacy.

This study noted that only 58.3% of the facilities had suitable private place for counseling patients on the use and adherence of antiretrovirals. This is in contrary to WHO recommendation that all programs must have a suitable space for drug counselling (UNAIDS/WHO, 2004). The lack of confidential counseling space may lead to inadequate drug counseling and hence poor drug management.

In this study only one facility provides antituberculosis prophylaxis. This shows how isoniazed was under utilized. Bruneton reports that, the proper management and prevention of opportunistic infection has been proven to have a positive impact on morbidity (Bruneton, 2001). Uniform access to drugs, such as an antituberculosis drugs and cotrimoxazole, is a cost effective intervention that is mandatory component of HIV care. Ministry of Health recommends that TB preventive therapy is an intervention that should be part of the package of care for people living with HIV. All HIV positive people with no signs and symptoms suggestive of active TB with positive tuberculin skin test are eligible for TB preventive therapy (MOH, 2004). This study further found that nearly all facilities qualified in the provision of cotrimoxazole prevention. These findings are similar to that of the study preparedness of Health Facilities to deliver antiretrovirals, which was done in Northern zone of Tanzania (Kinabo. Et al, 2004)

Further, the study shows that ARV commodities were scarce in the studied facilities. Not all HIV/AIDS patients who were eligible to start the therapy got the commodity. In assessing quality denominator can be readily identified for assessing many kind of underused problem if the eligible population is defined (Diagnosis, 1998). In this study the number of HIV/AIDS patients eligible to initiate ARVs was used as a denominator to assess the capacity of health facilities in providing antiretrovirals. The numerator used was number of HIV patients who were eligible and started antiretrovirals. The study result shows that PASADA Voluntary Agency had a capacity to give all eligible patients antiretroviral therapy. Lugalo military hospital had that capacity by 97%. The municipal hospitals had capacity between 64.3% and 71.2%. This capacity of the facilities to provide ARV is quite encouraging. WHO reports, that in the year 2003 only 5% of people in the developing countries who needed ART accessed the medicine (WHO, 2003).

5.4 Disposal of expired drugs and disposal of other wastes

Incinerator is essential for the health facilities waste disposal. The ministry of health recommends that broken glassware and containers of contaminated utensils and needles must directly be incinerates. The findings show that 4(33.3%) of the facilities in this study did not have incinerators. It is inappropriate because bad handling of contaminated materials, for instance contaminated blood materials may become source of transmission of infection to people.

Disposal of expired drugs was a big issue in the surveyed health facilities. The study found that there was improper disposal or non -disposal of the expired drugs. Improper disposal or non -disposal of unwanted drugs can create a variety of difficulties. Inappropriate disposal may contaminate water supply system or local water source used by nearby residents or wildlife. Expired drugs dumped into an insecure landfill may fall into hands of scavengers or children. Waste drugs may be pilfered from a stockpile and then diverted to the market for resale and misuse. Non-biodegradable antibiotics, antineoplastics, and disinfectants emptied into the sewage system may kill bacteria necessary for sewage treatment. Burning pharmaceuticals at low temperature or in open container can release toxic pollutants into air.

The study found that some of the studied facilities burned the expired drugs without informing TFDA or district pharmacist. Approval and sanctioning of disposal of pharmaceuticals must be sought from the appropriate authority. Disposal of pharmaceuticals should be carried out under the supervision of district, regional and national authorities that organize it according to strict criteria; disposal should not be done by individuals (WHO, 1999).

WHO recommends that sorting must be done to separate the pharmaceuticals into categories that require different disposal methods. The appropriate safe disposal method recommended would depend principally on the pharmaceutical dosage form of the drugs eg ampoules should not be burnt or incinerated, as they will explode (WHO, 1999). There is also a fear that the incinerators used by the

facilities to dispose the expired drugs were improper. The ideal approach for disposal of unwanted pharmaceuticals is through incineration at a temperature above 1200°C in specially built incineration with adequate flue gas cleaning. Such incineration facilities are mainly found in the industrialized world (RPSP, 2000)

5.5 Availability of Guidelines

The findings reveal that not all Health Facilities had all the recommended national guidelines. Ministry of Health recommends that before initiating or expanding ART program the facility should have: National HIV/AIDS care and treatment guidelines, PMTCT guidelines, Home Based Care guidelines, Laboratory guidelines, Pharmacy guidelines, and VCT guidelines (MOH, 2004). Some of the surveyed facilities did not have guidelines on Clinical management for HIV/AIDS, Home Based Care Pharmacy services, laboratory services, PMTCT and Voluntary Testing and Counseling.

About half of the health facilities did not have guidelines on monitoring adverse drug reaction. It has been reported that antiretrovirals had significant adverse reaction to HIV patients. The lack of adverse drug guidelines implies that management of adverse drug reactions in the surveyed facility was not adequate. The lack of guidelines on drug disposal reflects how the disposal of expired drugs was inappropriate.

Guidelines are important to medical professionals for the treatment and management of HIV/AIDS. About 16.7% of the facilities did not have guidelines on ARV treatment, TB control, STI management, HIV testing procedure, PEP, and occupational exposure to HIV/AIDS. As mentioned before, all surveyed facilities had TB, STI, and HIV testing. The absence of these guidelines in the facilities reflects that no adequate monitoring of quality of care was provided in these facilities.

Although some of the guidelines were available in the assessed facilities, the study found that only few health workers had access to the guidelines. This is because there is no official way of getting the guidelines. Only few health workers got the guidelines when attend training or seminar.

5.6 HIV care services

Although WHO, other international organizations, and Ministry of Health recommend a comprehensive HIV care and treatment in providing antiretrovirals, this study found that integrated services were not established in most of the studied facilities. Only three comprehensive services were fulfilled in all studied facilities. These were TB services, STI and Voluntary Counselling and testing.

For instance in this study it was found that, most of the private Health facilities were less responsible for the PMTCT and HBC services. It is reported that the availability of PMTCT services in the health facilities would increase the uptake of VCT in a synergistic fashion. It is also a crucial point for the introduction of antiretroviral treatment of the mother and the family when indicated. The lack of

PMTCT programs in these facilities implies that HIV care and treatment services for pregnancy women and newborns was not performed according to the recommended standards.

The findings show that more than half of the health facilities did not have Home Based Care services. It was noted that only the three municipal hospitals, PASADA voluntary agency and Kigamboni health centre were providing HBC services. Ministry of Health recommends that, health care workers should conduct supervisory visits to community and home care providers as part of their role and responsibility to ensure the continuum of care. The care given includes physical, psychosocial, spiritual and material support. Home Based care has benefits because allows the PLWHA to receive care and treatment in a familiar supportive environment. Home Based Care allows people living with HIV/AIDS to continue participating in family matters and make them easier to accept their conditions (MOH, 2004).

The variation for capacity to follow- up in this study may be due to difference in service quality. Patient satisfaction is one of the requirements of quality of care. If patient expectation to service is not fulfilled he/she may not go on seeking care from that health facilities but look for better service elsewhere. To provide comprehensive service is also necessary (Marcon, 2004), PASADA Voluntary Agency had a strong HBC program, it is easier to follow the patients.

The study revealed that only PASADA Voluntary Agency was able to provide nutrition services. The Ministry of Health and international organizations recommends that, basic support such as food should be part of continuum of care for PLWHA. Element of Comprehensive Care and Support include food support (Van Praag, 2002). A well-balanced nutrition is important to the effectiveness of ART. Unfortunately nutrition choices are limited in our region.

Most of the designated facilities monitored patients who are on ARVs in an interval of two weeks then monthly and few designated facilities monitor patients in a month interval. It is inappropriate to ignore monitoring patients who are on ARVs in the first two weeks because of the side effect caused by Nevirapine

Furthermore, in this study it was found that one quarter of the facilities did not have adequate rooms for consultation and counseling patients with HIV/AIDS. Adherence counseling and support should take place in a suitable private place to assist patient confidentiality (MOH, 2004). Counselling should conduct in an area where visual and auditory privacy are provided.

5.7 Reporting and recording

The process of monitoring quality includes collecting data, analyzing them and reporting the results (WHO, 2004). The study results show that, most of the studied health facilities had records for the number of HIV/AIDS patients. However, the information of the HIV patients and their treatment were not available in all of the studied facilities and this can affect monitoring. Research evidence shows that AIDS case data are characterized by underreporting (Hutton,

2004). Further GAO and Hutton's reports that, the management information system is inadequate to support scaling up of HIV care and treatment.

The study found that the private health facilities were less responsible for data collection. Gilks reports that, the problem at the moment is that the majority of treatment delivery is through the private sector. There was no accountability in the private sector and no service quality monitoring. There was no national system for counting the numbers of people on treatment (Gilks, 2004)

Although high percent of the facilities did not have adequate information system, the study revealed that the municipal hospitals had a better recording system. The information was computerized. The study found that the municipals hospital were sending data to MDH HIV/AIDS care and treatment program every day. The information sent detailed the information on number of: patients registered in the facility; Patients who are on ARVs; Patient started ARVs; Patient died on ARVs; Patients lost > three months on ARVs or > six months; Active seen; Patients eligible for ARVs, but not on ARVs; Eligibility for ARV not yet determined. This is a good example of data collection and dissemination process.

It was encouraging that all designated health facilities were recording the dispensed ARVs on the registered book according to the Ministry of Health recommendations. Furthermore, Ministry of health recommends that, normal stock records of antiretrovirals must be kept for all receipts and issues. Ledgers must be maintained for each item. In all assessed facilities drug monitoring was in place but the mechanism of monitoring varied. The study found that three quarter of the facilities were using ledger for monitoring antiretrovirals. It was

found that two of the facilities did not have data on the number of HIV patients registered and number of HIV patients who are on ARV treatment. Additionally, all health facilities designated May 2005 did not have the data on the number of patients who were eligible to start ARVs and the number of HIV patients who did not get antiretrovirals, but most of the facilities designated in October 2004 had this data. Furthermore all the facilities designated May 2005 did not keep records on the number of HIV patients lost to follow-up and who died while were on ART.

CHAPTER 6

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

It appears that not all health providers are providing HIV care and treatment services with adequate in- service training; this implies that the providers may not be up to date on the services they provide. Inadequate training for HIV care and treatment suggest an unmet program need for training.

Essential equipments for conducting HIV testing and monitoring were inadequate. The facilities did not have capacity to perform viral load, Western blot and drug resistance tests. Facilities were less well equipped with CD4+ T- lymphocyte count, and ELISA equipments. Vast majority of Health Facilities did perform HIV Rapid test, FBP, VDRL, Liver function, Kidney function, Sputum smear, Pregnancy test, and Sputum smear.

There was improper or non- disposal of expired drugs. The approval of disposal of pharmaceuticals was not from the appropriate authority; therefore drug disposal experts did not supervise the process. Guideline on disposal of expired drugs was lacking in all Facilities. The disposal of other hospital wastes was also daunting.

Except for PASADA Health Facility, there was inadequate antiretrovirals for the scaling-up HIV cares and treatment program as shown by the percentage of patients

started ARVs. More than five hundred patients were waiting for the initiation of ARVs. The second line regimen Abacavir, Kaletra, Indinavir Saquinavir and Ritonavir was found in less than quarter of the studied facilities.

Comprehensive HIV care and treatment was not fulfilled in many health facilities. Only few of the health facilities had Home Based Care services; PMTCT services was found in two third of the facilities; and only one health facilities was providing nutrition services. The advantage of integrated health services shown by PASADA Voluntary Agency, which had high capacity to follow-up its HIV/AIDS patients. Most of the health facilities were using cotrimoxazole as prophylaxis for opportunistic infection. Isoniazed was under utilized for treating latent tuberculosis.

In some of the studied facilities there was lack of infrastructures including inadequate confidential place for counselling. Facilities also lack adequate space to store antiretrovirals. Additionally, some of the facilities lack refrigerators and working air conditioner for the storage of antiretrovirals.

The Health Information System was comparatively weak. The information system was unable to support the monitoring and reporting requirement in an expanded response to HIV/AIDS. The non- government health facilities were less responsible for data collection and analysis.

Therefore we conclude that the capacity of Health Facilities to provide antiretroviral therapy varies from facilities. There was an average capacity for the facilities

designated to deliver antiretrovirals from October 2004. The health facil designated May 2005 were less prepared.

6.2 RECOMMENDATIONS

6.2.1. In order for the program to treat more than 400,000 HIV/AIDS patients in the next five years it need more emphasis on staff training, improvement of infrastructure, strengthening HMIS, to enhance adequate equipments and drugs, and the comprehensive health care services.

6.2.2 The Ministry of Health and health facilities should make sure that adequate guidelines are available on the facilities and that all health workers have access to the guidelines.

6.2.3 Since the study found a weak health information system, current Health Management Information System which was designed to monitor the essential health package should be improved or changed and develop new data collection system. Computerization of data at facilities level should be emphasized to make easy and quick data processing.

6.2.4 Kigamboni Health Centre, which qualified in many categories to provide ARVs in this study, can be strengthening and accredited to deliver ART. For instance it had PMTCT, HBC, VCT, qualified and trained staffs and with 46 registered HIV patients. HIV patients in that area travel many kilometers to Temeke hospital.

6.2.5 Government should adopt some of the success from PASADA in its other health facilities.

6.2.6 The Government should conduct regular studies to monitor process of providing ART to reveal some inadequacies.

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