

**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF MEDICINE**  
**DEPARTMENT OF PUBLIC HEALTH**

**Determination of competency levels for the management of HIV/AIDS  
amongst qualified health workers, in Chibombo district.**

**A Dissertation submitted**

**by**

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**In partial fulfillment of the requirements for the award of the Degree of  
Master of Public Health**

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I, **PRUDENCE MUSONDA MALAMA**, do hereby certify that this dissertation is the product of my own work and in submitting it for my Master of Public Health programme, further attest that it has not been submitted to another University in part or whole for the award of any programme.

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**DECLARATION**

This dissertation is the original work of **PRUDENCE MUSONDA MALAMA**

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## ABSTRACT

### INTRODUCTION

Chibombo district is situated in rural Zambia and HIV/AIDS was established as the district's leading cause of mortality, which accounted for 20% of all deaths (Goma et al., 2013) and it was one of the major health challenges experienced in the district, according to the Chibombo District Health Management Team (DHMT) report, 2010. The report stated that the expansion of provision of comprehensive HIV/AIDS services in a rural area like Chibombo requires additional health workers at all levels of care. Though this is a challenge for the whole country, the shortage of healthcare personnel is particularly acute in rural areas, where more than half of the health centers employ only one qualified staff member and many function without any trained health workers (Ministry of Health, Human Resources for Health Strategic Plan, 2005). The aim of this study was to determine the distribution of HIV/AIDS management, competency levels among the health workers in Chibombo district, as well as to establish the factors that influenced the level of competence of the health workers in the district.

### METHODS

This study was a cross sectional descriptive study design using both quantitative and qualitative data. The quantitative data was obtained from the analysis of secondary data from the study, *'Evaluating the Availability of Adequately Trained Health care Providers in Rural Zambia through competency assessment and outcome mapping'* (Goma et al., 2013). The level of competence was determined from a self-assessment questionnaire based on the *competency based health human resources planning framework*. A competence level of 75% and above was considered competent, and any competence level below 75% was considered as not competent. A total of 21 health workers were interviewed. For the qualitative part of the study, in depth interviews with key informants from the Chibombo District Health Management Trust were conducted to find out if the health workers in Chibombo district were competent, and the factors that affect their level of competence. The interviews were recorded, transcribed and interpreted based on common themes evident in all the interviews.

## **RESULTS**

Liteta District hospital, had competent health workers, some of whom scored above 80% (the medical doctors) in competence level. The other health workers interviewed from the 3 rural health facilities were not competent in HIV/AIDS management and care, apart from one clinical officer in Chipembi who scored above 80%. The District hospital had the adequate number of health workers in the facilities, whereas all the 3 rural health facilities had critical health workers missing like a laboratory technician and pharmacy technician. The factors that affected the levels of competence in Chibombo were intrinsic factors, such as; lack of training in HIV/AIDS management ,inadequate undergraduate level training, absence of in-house training, lack of concentration & practice, failure to consult with other colleagues, failure to read in order to update skills. Extrinsic factors such as a centralized system of management, (government decides on health worker posting and not on District recommendations or requirements), serious shortage of staff, patient overload, general hardships and personal challenges like poor living quarters, lack of electricity, dilapidated living quarters, long distance to banks, bad road infrastructure, lack of tools, or equipment, interference from chiefs, lack of appreciation from patients -affected the levels of competence that were measured.

## **CONCLUSIONS**

In Chibombo district, Liteta district hospital had a proper mix of health workers who were skilled and competent enough to provide adequate HIV/AIDS management and care, whereas the majority of the RHC's and Health post staff were not competent. All of the RHC's lacked some of the critical health workers needed in order for the facility to effectively manage HIV/AIDS as a health team.

## **DEDICATION**

This dissertation is dedicated to my heavenly father, for always giving me the wings to fly and to my husband Jonathan Malama, my gallant soldier, for his unwavering love, emotional and financial support during this journey .For always pushing me to complete what I started and reminding me that hard work and discipline always pay off. To my daughter Hannah Bupe Malama and my son Yande Samuel Malama who didn't have all the time with me that they deserved because I needed to finish this paper and couldn't be with them sometimes, so that I could prepare for their future. And to my beloved parents Mr. Louis Timothy Musonda (the late) and Helen Chishimba Musonda for setting me up in life to reach for the stars.

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## LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-Retroviral Therapy
ARV	Anti- Retroviral
CO	Clinical Officer
CSSD	Central Sterile Services Department
CSO	Central Statistics Office
DHMT	District Health Management Team
DMO	District Medical Officer
EHT	Environmental Health Technician
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HCT	HIV Counseling and Testing
HIV	Human Immune deficiency Virus
HMIS	Health Management Information System
HRH	Human Resources for Health
HRM	Human Resources Manager
HRHRAG	Human Resources for Health Research to Action Group
HSSP	Healthcare Systems Strengthening Programme
MCTC	Mother to Child Transmission
MDG's	Millennium Development Goals
NGO	Non-Governmental Organization
NHSP	National Health Strategic Plan
PE	Personal Emoluments
PEPFAR	President's Emergency Plan for AIDS Relief
PLWHA	People Living With HIV and AIDS
PMTCT	Prevention of Mother to Child Transmission
RHC	Rural Health Center

STI's	Sexually transmitted infections
UNAIDS	United Nations Agency for International Development
USA	United States of America
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
ZDHS	Zambia Demographic and Health Survey
ZNSP	Zambia National Strategic Plan
ZAMFOHR	Zambia Forum for Health Research
ZSSP	Zambia Systems strengthening programs

## DEFINITION OF TERMS

- **Attrition**

This is a reduction in the number of employees or participants that occurs when people leave because they resign, retire or leave and are not replaced (Merriam – Webster dictionary, 2014).

- **Competency**

The blend of skills, abilities, and knowledge needed to perform a specific task (Robinson and Davidson, 2007).

- **Establishment**

The persons (or committees or departments etc.) who make up a body for the purpose of administering something (Collins Thesaurus of the English Language, 2002).

- **Extrinsic Factors**

External factors originating from or on the outside (Merriam-Webster dictionary, 2014).

- **Human Resources for Health**

These are health personnel or men and women who provide health care. They include nurses and midwives, pharmacists, physicians, dentists and other health professionals. They also include auxiliary health care workers, community health workers, practitioners of traditional medicine, technicians and other paraprofessional personnel (The World Health Report, 2006).

- **Human Resources for Health Management**

This is the development, management, coordination, financing and remuneration of the human capital in a national health workforce to achieve access, coverage and quality of health services (Matterson, 2011).

- **Intrinsic Factors**

Internal factors belonging to the essential nature or constitution of a thing (Merriam-Webster dictionary, 2014)

- **Occupational Health**

The ability of a worker to function at an optimum level of well-being at a worksite as reflected in terms of productivity, work attendance, disability compensation claims, and employment longevity. (Mosby's Medical Dictionary, 2009)

- **Palliative Care**

This is the medical management of infectious, neurological or oncological complications of HIV/AIDS. It comprehensively addresses symptoms and suffering throughout the continuum of HIV disease. It includes routine, confidential counseling and testing to identify those who need or will need palliative care, family members who could also be infected and in need of care and, family members and partners not infected and in need of prevention. (HIV/AIDS Palliative Care Guidance#1 for the United States Government in-Country Staff and Implementing Partners, 2012)

## 1.0 INTRODUCTION AND BACKGROUND

Zambia faces many challenges today in health care and its health care system delivery. Some of these challenges are as a result of the centralized system of governance (Makasa, 2009). In a centralized system of governance, the authority, responsibility, and decision making power are vested solely within a central body (Ministry of Health in Zambia). The centralized body establishes the policies, standards, guidelines, procedures, and processes (Markle Foundation, 2003). In Zambia, the public health system advocates free public healthcare for all, with the aim of providing equitable access to healthcare for all Zambians. While this is a vision that Zambia is currently pursuing, there still exist challenges in health care and health care delivery. Challenges include supply-chain issues such as shortages and erratic supply of essential drugs and medical supplies; inadequate and poor state of essential infrastructure, equipment and transport. This is compounded by a high disease burden and critical shortages of qualified health workers at all levels of health service delivery, especially in rural areas (Makasa, 2009).

### 1.1 HEALTH CARE CHALLENGES IN ZAMBIA

#### **Supply Chain Challenges**

In Zambia, many factors negatively affect the supply of essential drugs. These factors include the emergence of new programmes, insufficient human resources to run supply chain management, a growing demand on services and lack of appreciation of logistics which function as a core activity in health delivery system. In addition, the government of Zambia supplies identical health center kits to all the health centres regardless of the epidemiological profile. This approach is not demand- driven, which leads to shortages in some areas and overstocks in other areas. (Medical Stores News, 2014).



## **Inadequate/Poor Essential Infrastructure**

In both rural and urban areas, health infrastructure is inadequate. In rural areas 46% of households live outside a radius of 5km from a health facility ( compared to 1% urban areas) making it difficult for many people to access the needed services. Health center structures are not adequate to meet the new challenges in health service delivery such as HIV/AIDS, Maternal health and TB. Challenges include inadequate space, fragmented services and standards which require new equipment, and the construction and rehabilitation of obsolete equipment in old health facilities. (Zambia National Health Strategic Plan 2011 - 2015, 2011).

## **Equipment**

In Zambia, there is currently a critical shortage of key equipment in most of the hospitals. This is hampering the provision of quality critical services in hospitals. Theatre and anesthesia, maternity, Central Sterile Services Department (CSSD) and general bedside nursing equipment need to be replaced in most of the hospitals in Zambia. Government also faces a lot of challenges in management and maintenance of health care technology due to lack of properly qualified maintenance personnel. This leads to a good number of equipment not being in functional order. There are currently seven level one hospitals, thirty eight health centres and one hundred and thirty five health posts that have been completed but cannot be commissioned due to lack of equipment. (Zambia National Health Strategic Plan 2011-2015, 2011).

## **Transport**

The transport system in Zambia is currently inefficient and inadequate. The maintenance system is poor and there is inadequate air, marine and land transport for outreach and referral services. There is inadequate ambulance with patient care facilities. Capacity for vehicle transport management and maintenance is very limited. (Zambia National Health Strategic Plan 2011-2015, 2011).

## **High Disease Burden**

Zambia has a high burden of disease, which is mainly characterized by high prevalence and impact of communicable diseases, particularly, malaria, HIV/AIDS, STI's, TB and a high maternal rate, neonatal rate, and child morbidities and mortalities. The country is also faced

with a rapidly rising burden of non-communicable diseases, including mental health, diabetes, cardiovascular diseases and violence. (Zambia National Health Strategic Plan, 2011).

Currently the top 10 causes of morbidity and mortality in Zambia include malaria, respiratory infections ( non-pneumonia), diarrhea ( non-blood), trauma ( accidents, injuries, wounds and burns), eye infections, skin infections, respiratory infections ( pneumonia), ear, nose and throat infections, intestinal worms and anemia.

HIV/AIDS continues to be a huge disease burden in a developing country like Zambia, whose current population stands at 13, 046, 508 persons (Zambia Census preliminary report, 2010) and Adult (15 to 45 years) HIV prevalence peaked in the mid-1990s at about 16% and has stabilized at 14.3 % ever since (Zambia Demographic Health Survey, 2007). In 2009, it was estimated that 226 new adult infections and 25 child infections occurred each day (National HIV and AIDS Strategic Framework, 2010).

As the most productive age of the population (16 – 49year olds) - is the most affected by this pandemic, with a prevalence rate of 15.2% (UNAIDS, Report on the Global AIDS Epidemic, 2008), Human Resources for Health (HRH) competencies to manage HIV/AIDS are crucial in order to reduce the occurrence of new infections and start reversing the epidemic as we aim towards an HIV-free generation.

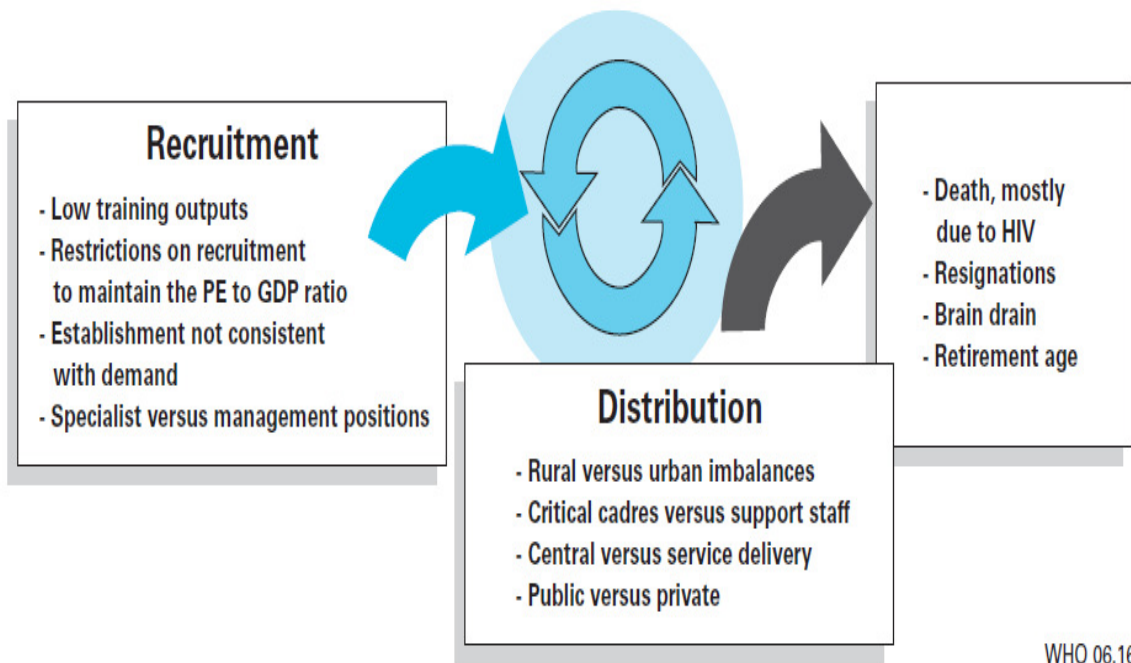
### **Critical Shortages of Health Workers and Health Personnel**

Zambia is one of the US President's Emergency Plan Emergence Plan for AIDS Relief (PEPFAR) 15 focus countries. However, recent efforts to provide lifesaving HIV medications to infected persons has been complicated by a lack of adequately trained health care providers who are available to deliver these complex medications safely and effectively (The President's Emergency Plan for AIDS Relief, 2008) Country Profile: Zambia National HIV prevalence.

There are several other factors that contribute to this crisis in human resources for health in Zambia. These factors are cyclical in nature, as illustrated in Figure 1. The factors include challenges in recruitment of health personal, low training outputs, restrictions on recruitment to maintain the Personal Emoluments (PE) to Gross Domestic Product (GDP) ratio and the establishment is not consistent with the demand. The other challenges include the unequal distribution of HRH in rural and urban areas, and the absence of critical

workers. Attrition (due to death, resignations and retirement) also contribute to this crises. (World Health Organisation, 2006).

**Figure 1: Characteristics of the Crisis in Human Resources for Health in Zambia**

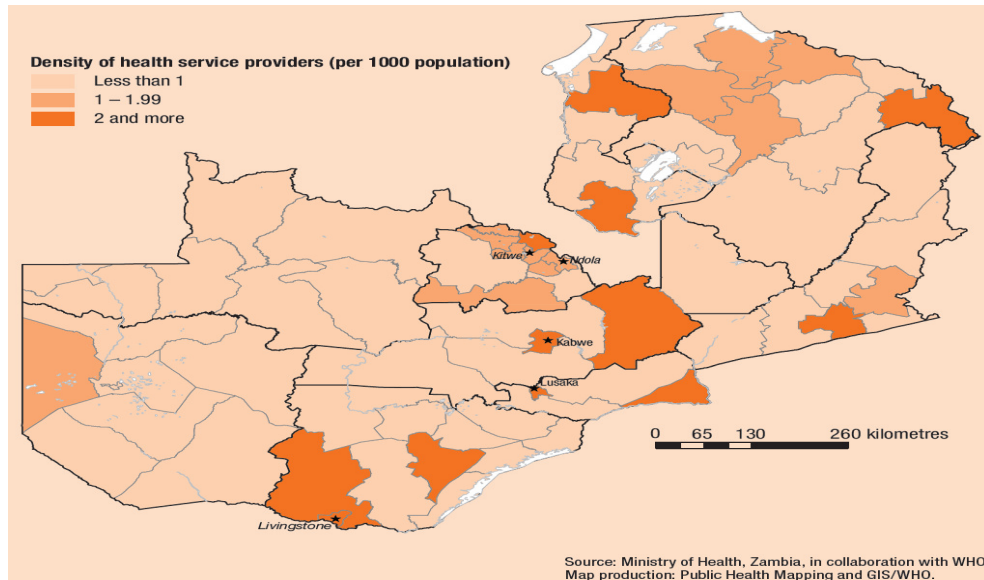


*Source, World Health Organisation, 2006*

Shortages in human resources for health, especially in rural Zambia are a major challenge.

There currently exists a high patient-clinician ratio and the geographical distribution of health service providers is concentrated along the line of rail. Figure 2 illustrates the distribution of health service providers per 1000 population and only selected parts of the

country have 2 or more health service providers, per 1000 population. This means that many areas in Zambia have a serious deficit of HRH to manage and treat HIV/AIDS.



**Figure 2: Density of Health Service providers (per 1000 population), MOH**

The expansion of provision of comprehensive HIV/AIDS services requires additional health workers at all levels of care, and though this is a challenge for the whole country, the shortage of healthcare personnel is particularly acute in rural areas, where more than half of the health centres employ only one qualified staff member and many function without any trained health workers (Ministry of Health, 2005. HRH Strategic Plan, 2005). This produces a high patient-clinician ratio due to the large number of patients that must be treated by maybe only one health worker. Subsequently, health services will be delegated to the lower workers who may not have the competencies required to manage HIV/AIDS patients.

### **HIV/AIDS and Clinician Competencies**

The provision of treatment and care for HIV/AIDS patients involves the medical management of infectious, neurological or oncological complications of HIV/AIDS. This requires a sufficient level of competency to successfully provide adequate care and treatment. This can only be realized with the sufficient numbers and category of health workers stationed in the various health centres. This has in the past remained a challenge as most health personnel would rather live in urban areas where they have access to a lot of amenities. Those that work in the rural and remote areas require the relevant incentives to persuade them to stay in the

rural area. The Government of the Republic of Zambia, through the Ministry of Health, has in the past introduced retention schemes with the intention of providing HRH incentives for working in rural areas. The hope has been that through these retention schemes, there would be competent health personnel teams situated in the rural areas. According to the study *Evaluating the Availability of Adequately Trained Health care Providers in Rural Zambia through competency assessment and outcome mapping*, (Goma et al., 2013), it was reported that in Chibombo, very few workers had access to retention schemes, especially in the remote health facilities. Most of the health workers that had access to them were from the urban facilities.

## **1.2 STATEMENT OF THE PROBLEM**

### **HIV/AIDS in Chibombo District**

HIV/AIDS was discovered to be one of the major health challenges experienced in Chibombo, a rural district in Zambia's Central Province. It accounted for 20% of all deaths. This was established from the district HMIS (Chibombo DHMT Report, 2010), and the study *'Evaluating the Availability of Adequately Trained Health care Providers in Rural Zambia through competency assessment and outcome mapping* (Goma et al., 2013). The number of competencies and *how* many patients would need each competency on a typical day was estimated using the Competency-Based Health Human Resources Planning frame work (Birch et al., 2007). Figure 3.

### 1.3 THE COMPETENCY BASED HEALTH HUMAN RESOURCES PLANNING FRAMEWORK



Figure 3 – Competency Based Health Human Resources Planning Framework:

From the above framework it was established that HIV/AIDS is one of the major health challenges experienced in Chibombo district. Although the competencies of the existing health workforces in Chibombo mostly aligned with these conditions, some substantial gaps were found between the services those workforces can provide and the services their populations need. (Goma et al., 2013). HIV/AIDS care requires health workers at all stages of care. Therefore the gap that was identified, suggests that there is need for specialised health workers in Chibombo. Consequently, more needs to be done to improve the establishments in place, in order for the reported situation to change. The parent study did not establish the distribution in each facility of the current competencies of health care workers in Chibombo, the health worker teams working in each facility versus the recommended establishment or the factors affecting the level of competence of health workers in Chibombo which this study

sought to establish. This is important as it would show where efforts need to be directed for the management of HIV/AIDS.

#### **1.4 RATIONALE FOR STUDY**

This study was conducted in Chibombo district to establish which health personnel in Liteta District Hospital, Chitanda RHC, Chipembi RHC and Ipongo RHC had the personal competence to carry out the specific skills under each of the seven domains of HIV/AIDS care and management. The seven domains were (1) Public health, prevention and infection control, (2) Occupational health, (3) Research, (4) Care for HIV/AIDS patients, (5) Palliative care, (6) Education and (7) Administration. When the parent study was conducted there were 136 trained health workers in the district (a ratio of over 2,100 persons per health worker) to staff 24 rural health centres, one remote health post and one district hospital. There were no private health care facilities in Chibombo. (Goma et al., 2013). The purpose of this study was to determine the distribution of competence levels amongst health workers in each facility and the type of health teams in each facility versus the acceptable establishment, as well as factors affecting the level of competence of health workers in Chibombo.

#### **1.5 SIGNIFICANCE OF STUDY**

The significance of this study was to show the distribution of HIV/AIDS management and care competencies amongst health workers, the type of health teams resident in rural health facilities, versus the recommended establishment (critical health workers needed for a health facility to function optimally), and factors affecting the level of competence in Chibombo district. The results would inform government policy makers of the human resources for health competence requirements that need to be satisfied in order to improve on HIV/AIDS management in Chibombo district. This in turn would inform policy of the appropriate staffing levels and establishments that are consistent with demand.

#### **1.6 AIM/ GENERAL OBJECTIVE**

The aim of this study was to determine the HIV/AIDS treatment and care competency distribution amongst the health workers in the selected health facilities in Chibombo district and establish the factors affecting the level of competence.

#### **1.7 SPECIFIC OBJECTIVES**

- 1) To determine the distribution of the listed HIV/AIDS treatment and care competencies amongst health personnel in the selected health facilities in Chibombo District.

- 2) To measure the filled health worker posts against the establishment in the selected health facilities, to determine the missing relevant health workers needed.
- 3) To determine the factors affecting the level of competence in the health workers in Chibombo district health facilities

### **1.8 RESEARCH QUESTIONS**

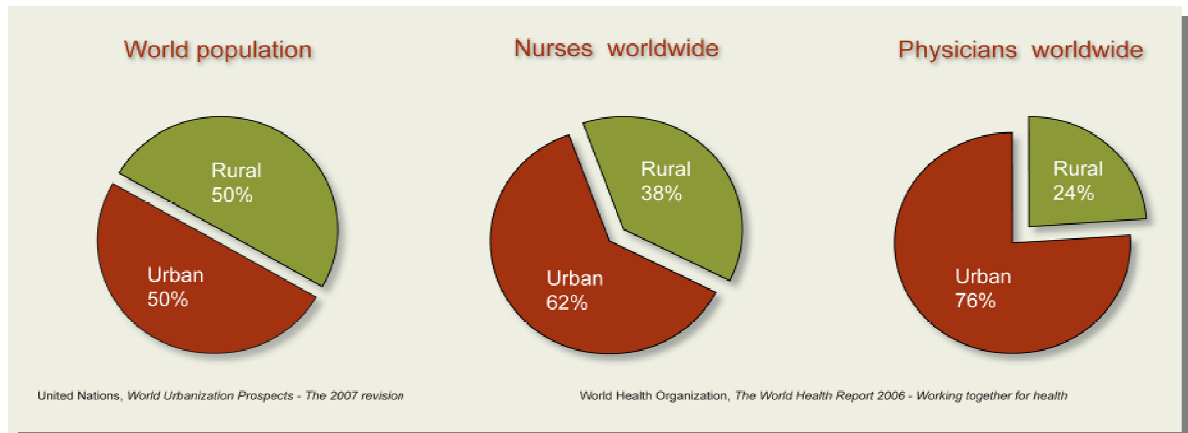
- 1) What is the distribution of the listed HIV/AIDS treatment and care competencies amongst health personnel in the selected health facilities in Chibombo District?
- 2) Who are the missing relevant health workers needed to fill the missing health worker posts, based on the needed establishment in the selected RHC's?
- 3) What are the factors affecting the level of competence in the health workers in Chibombo district health facilities?



## 2.0 LITERATURE REVIEW

Globally half the world's population currently live in rural and remote areas. The problem is that most health workers live and work in cities. This imbalance is common to almost all countries and poses a major challenge to the nationwide provision of health services. Its impact, however, is most severe in low income countries. There are two reasons for this; one is that many of these countries already suffer from acute shortages of health workers - in all areas. The other is that the proportion of the population living in rural regions tends to be greater in poorer countries than in rich ones. (World Health Organization, 2010).

Insufficient numbers and types of qualified health workers in remote and rural areas impedes access to health-care services for a significant percentage of the population, slows progress towards attaining the Millennium Development Goals and challenges the aspirations of achieving health for all. This is a global problem that affects almost all countries. Approximately one half of the global population lives in rural areas, but these areas are served by only 38% of the total nursing workforce and by less than a quarter of the total physician workforce (World Health Organisation, 2006). Figure 4



*Figure 4: World Health Organisation World health Report 2006: Distribution of Health workers worldwide*

The situation is especially dire in 57 countries where a critical shortage of trained health workers means an estimated one billion people have no access to essential health-care services (The world health report, 2006). In Bangladesh, for example, 30% of nurses are

located in four metropolitan districts where only 15% of the population lives (Zurn, 2004). In South Africa, 46% of the population lives in rural areas, but only 12% of doctors and 19% of nurses are working there (Hamilton et al., 2010). To compound the problem, in some sub-Saharan African countries, like Côte d'Ivoire, the Democratic Republic of the Congo, Sudan and Mali, the overproduction of health workers relative to the capacity for absorption has led to medical unemployment in urban areas and shortages in rural areas (Codjia et al., 2010). Even high-income countries have imbalances of health workers in remote and rural areas. In the United States of America (USA), 9% of registered physicians practice in rural areas where 20% of the population lives (Committee on future of Rural Health Care, 2005). France has large inequalities in the density of general practitioners, with higher densities in the south and the capital compared with the center and north of the country (Cash et al., 2008). And in Canada, only 9.3% of physicians work in remote and rural areas where 24% of the population lives (Dumont et al., 2008).

The HRH situation in the African region illustrates that 36 African countries in HRH crisis have an average of only 0.8 doctors and nurses & midwives per 1000 population. See Figure 5.

**(World Health Organisation third consultation on HRH, October 2011)**

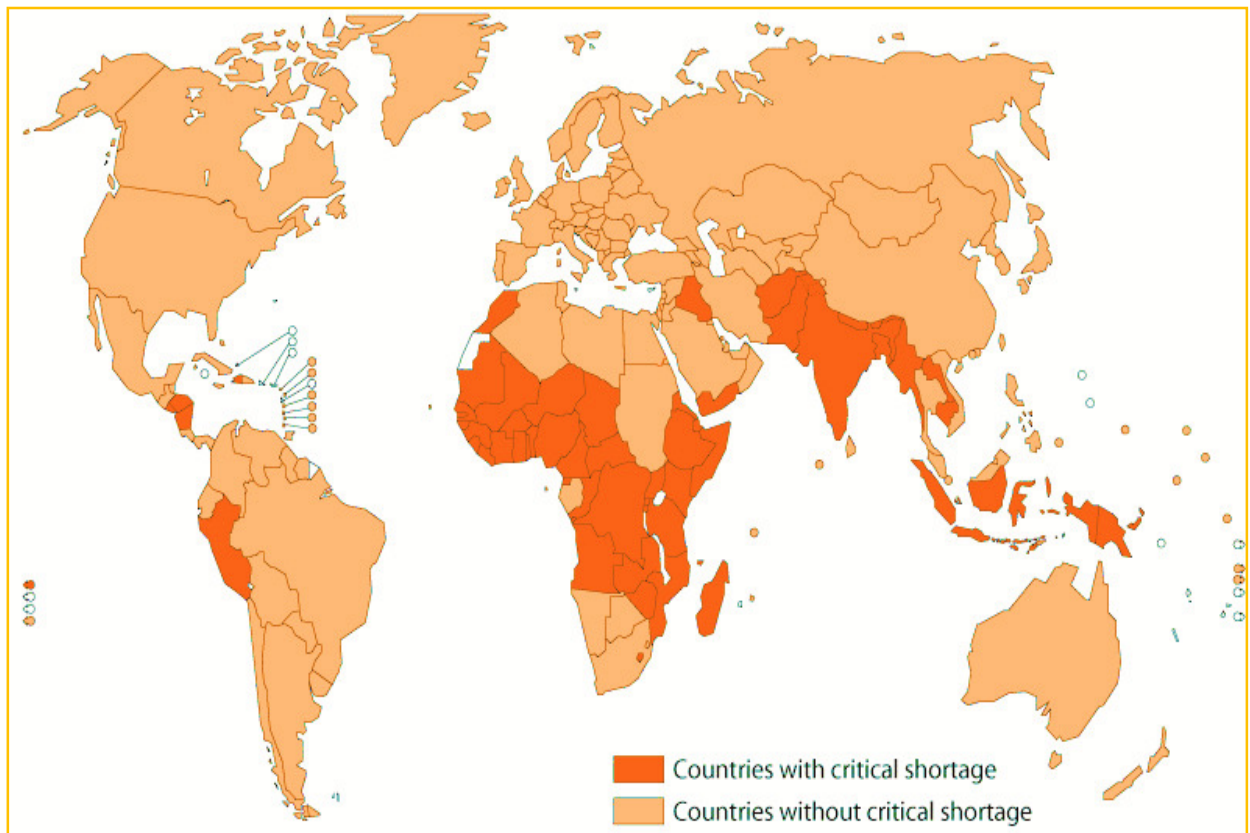


Figure 5: Shortages of HRH world wide

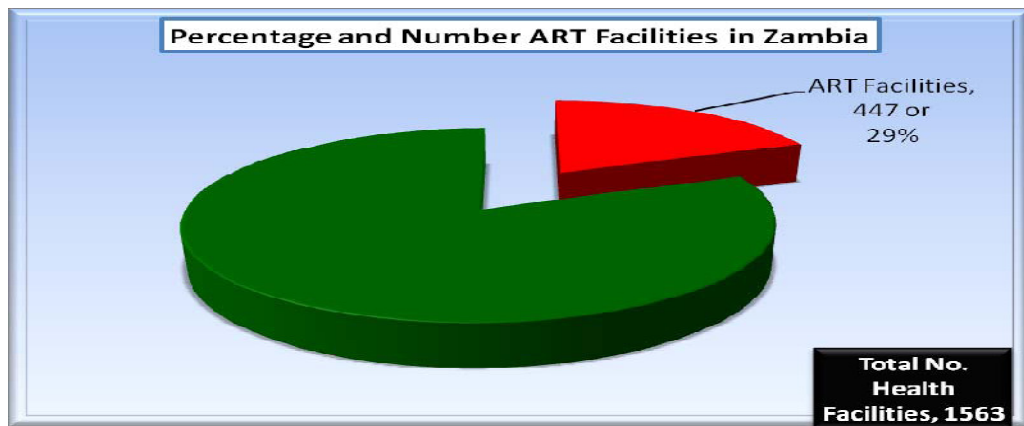
Approximately one half of the world's population lives in rural areas but these areas are served by only 38% of the total nursing workforce and by less than 25% of the total physician workforce (World Health Organisation, 2006).

Cultivating competent human resources for health to provide HIV/AIDS care takes time. Regulatory bodies are challenged to define and ensure an acceptable standard of health workforce quality. For most health workers, the introduction to providing antiretroviral therapy involves becoming familiar with new and complex treatment approaches. Most notably, the provision of antiretroviral therapy will, in some cases, change how different types of health workers work. For instance, in some countries, nurses will begin the case management of people receiving antiretroviral therapy and, in some cases, even prescribe the medicines. This involves an entirely new approach to practicing the profession. Meanwhile, doctors at the district level will need to learn to supervise cases at a distance and to take on the role of case consultants (supporters and providers accepting referrals) for people with complications. Any mistakes by health workers can have significant personal and legal implications, and health workers demand to be appropriately trained before they are asked to perform their functions (World Health Organisation, 2005).

In Africa, country evaluations of disease-oriented programs have found that the lack of appropriately trained and motivated health workers is one of the major bottlenecks in implementing evidence-based health interventions to improve maternal and child health, and to address HIV/AIDS, malaria and tuberculosis (Dreesch et al., 2005). The absence of well-educated and properly managed health workers was also identified as one of the health systems constraints to achieve the millennium development goals, along with poor infrastructure, drugs and supply systems, and information systems (Travis et al., 2004).

Drawing on '*Médecins Sans Frontiers*' (Doctors Without Borders) experience of scaling-up antiretroviral treatment in three sub-Saharan African countries (Malawi, South Africa and Lesotho) and supplemented by a review of the literature, (Philips et al., 2009) revealed that Sub-Saharan Africa is facing a crisis in human health resources due to a critical shortage of health workers. According to the paper, the shortage is compounded by a high burden of infectious diseases, emigration of trained professionals, difficult working conditions and low motivation. In particular, the burden of HIV/AIDS has led to the concept of task shifting being increasingly promoted as a way of rapidly expanding human resource capacity (Philips et al., 2009).

The human resources for health shortages situation is no different in Zambia. At the end of 2009, Zambia had 447 health facilities that were offering ART (prescribing and/or providing clinical follow-up) representing an increment of 115 new facilities since 2008. Based on the Health Institutions of Zambia 2008 report by the Ministry of Health, the country had 1,563 health facilities; this implies that Zambia now has 29 per cent of its total health facilities offering ART as at the end of 2009. (World Health Organisation, 2010. UNAIDS, Progress Report 2010). Figure 6



**Figure 6: Source: Health Institutions of Zambia, 2008, Ministry of Health and SMARTCARE**

The geographical distribution of health service providers is concentrated along the line of rail in Zambia. This means that some areas have a serious deficit of HRH to provide HIV/AIDS treatment and management.

According to the findings in the report *Use of task-shifting to rapidly scale-up HIV treatment services: experiences from Lusaka, Zambia*, (Morris et al., 2009) over the short term, it is possible to expand ART services in settings of extreme health worker shortage without compromising clinical care quality. The authors of this report, however, argued that engagement with Ministry of Health is critically needed for long-term sustainable solutions: reduced provider migration (i.e. "brain drain"), expanded health care for providers with HIV, and improved working conditions for government health professionals. The human resource shortage is a critical barrier to the rapid scale-up of ART – and the public health benefits associated with such programs – and must therefore be addressed with new and innovative strategies (Morris et al., 2009).

In Zambia, competency in providing healthcare in a rural area like Chibombo is greatly compromised because of staff shortage and demotivation. Staff there are demotivated due to a number of factors, including poor salary and conditions of service, inadequate retention allowances and benefits, lack of housing/accommodation, lack of education facilities for children, low intellectual stimulation, poor working environment (availability of drugs, equipment, supplies including transport), few social amenities, lack of research and training opportunities, manpower shortages resulting in increased workload and compounding all the above issues, little access to secondary income opportunities, little recognition from supervisor & employer, and lack of career progression/promotions (Ministry of Health - Health Sector Strategic Plan, 2008).

The retention of health workers in rural areas is affected by the type of retention schemes in existence. Respondents participating in Retention & Recruitment Schemes in Chibombo rated the most effective schemes as: Rural hardship allowance, Accommodation/housing, Uniform maintenance allowance, Other Salary top-up and Night duty allowance. (Goma et al., 2013)

The importance of retention schemes with regards to competencies to provide HIV/AIDS care is that when staff are retained, you have a continuous supply of competencies available to provide the care required in each health center. Retention schemes also help to build a pool of people with enough competencies within a system in the respective health centres, and subsequently these teams will be present for a longer time.

Finally, given the speed at which antiretroviral therapy is being expanded in Zambia and its shortage of trained health workers, people receiving antiretroviral therapy are unnecessarily exposed to health workers with little experience in their field. People receiving health care normally confront a team of individuals with varying degrees of competence to practice. From a public health perspective, if treatment fails due to health worker incompetence, this could result in problems not only for those being treated but also for the population in general, as it could lead to the development of drug resistance from suboptimal treatment. (World Health Organisation, 2005) There is hence a growing demand to ensure *a priori* that professionals do not make mistakes. The public needs to be assured that health care workers are indeed competent to practice.

## 3.0 METHODOLOGY

### 3.1 Study Design

This study was a mixed methods descriptive cross-sectional study design. It included both quantitative and qualitative data.

- a. The quantitative data was described based on analysis of quantitative secondary data from the parent study **Evaluating the availability of adequately trained health care providers in rural Zambia through competency assessment and outcome mapping** (Goma et al., 2013).
- b. The qualitative data was obtained through in depth interviews with key informants from the Chibombo District Health Management Team. This was thereafter described using similar themes observed in the data collected.

This study focused on aspects of the original study that were not analysed; i.e.

- (i) The distribution of competencies of health care workers in the respective facilities.
- (ii) The compositions of health care teams in the facilities and the missing health workers needed to constitute the recommended establishment.
- (iii) The factors affecting the level of competence of the health workers in Chibombo district.

### 3.2 Study Setting /Area

Chibombo District is located in Zambia's Central Province and lies near the Lukanga Swamp. It is 95 km north of Lusaka and 45 km south-west of Kabwe on the Great North Road. It has a population of approximately 294,000 (Zambia Central Statistics Office. *2010 Census of Housing and Population*) spread over 13,670 km<sup>2</sup> – just under 22 people per square kilometer.

. The district's leading cause of mortality is HIV/AIDS, which accounts for 20% of all deaths (Goma et al., 2013).

Figure 7 illustrates the nine provinces of Zambia, and Figure 8 illustrates the location of Chibombo District in Zambia's Central province.



Figure 7: Map of Zambia showing the provinces

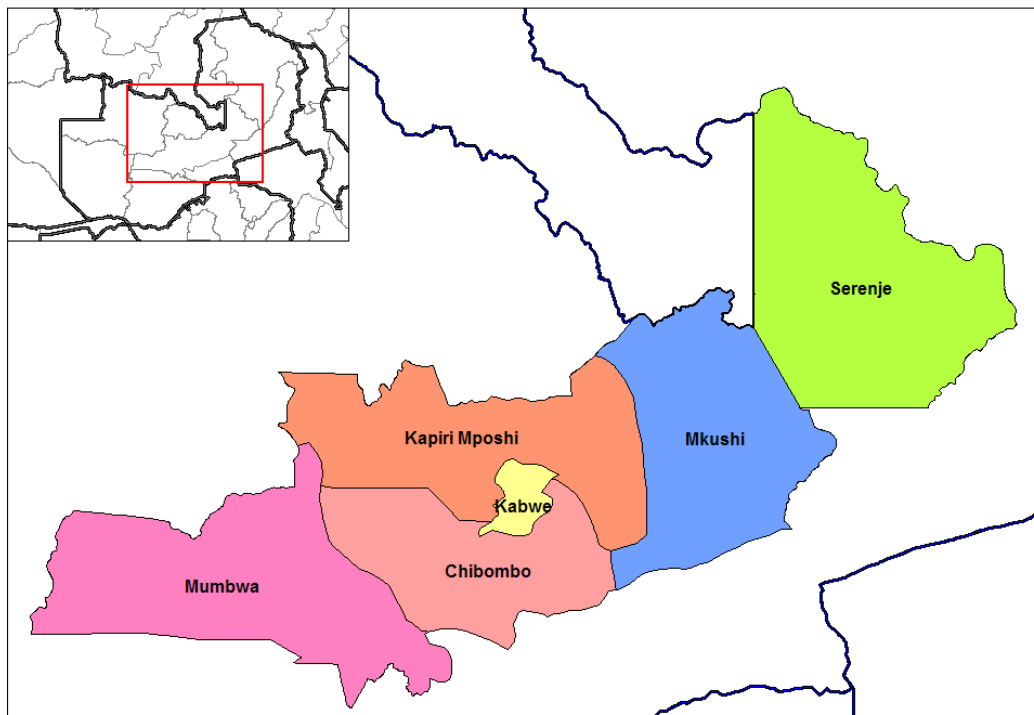


Figure 8: Map of Zambia showing Chibombo district in the Central province

To obtain the perspectives of health workers practicing under different conditions, in Chibombo district, health facilities selected for the interviews included two rural health centres (Chipembi & Chitanda), one remote health center (Ipongo), and the district hospital (Liteta District Hospital). Limitations on time and resources for the study prohibited travelling to every health center in both districts.

### **3.3 Study setting**

The setting for this study was Chibombo District. The district's leading cause of mortality was HIV/AIDS, which accounted for 20% of all deaths (Goma et al., 2013). When the study was conducted there were 136 trained health workers in the district (a ratio of over 2,100 persons per health worker) to staff 24 rural health centres, one remote health post and one district hospital. There were no private health care facilities in Chibombo.

### **3.4 Study Population**

The study population was all qualified health workers in Chibombo District, aged between 15 and 60 years and above.

### **3.5 Target Population**

The target population for this study was all qualified human resources for health personnel i.e. Doctors, Nurses, Midwives, Clinical officers, Environmental technicians, Pharmacists, Pharmacy technicians and Nutritionists in the health centres in Chibombo district, aged 15 to 60 and above years, male or female in the selected health centres and hospital.

The Quantitative study methodology was adopted from the original study, and is hereafter explained;



### **3.6 SOURCE OF QUANTITATIVE DATA SET- ZAMBIA FORUM FOR HEALTH RESEARCH STUDY METHODS**

#### **Evaluating the Availability of Adequately Trained Health care Providers in rural Zambia through competency assessment and outcome mapping (Goma et al., 2013).**

The health conditions causing the greatest mortality and morbidity in Chibombo district were identified using administrative data and consultations with community health committees and health workers. The number and type of health care services required to address these conditions were estimated based on their population sizes, incidence and prevalence of each condition, and desired levels of service. The capacity of each district's health workers to provide these services was estimated using a survey of health workers (n=21) that assessed the availability of their specific competencies.

This research was carried out using a framework for service-based planning (Murphy et al., 2012) depicted in the Health Human Resources Planning framework in Figure 3. The unit of analysis used in this framework was the particular health care service that must be performed by a health care provider to address a certain health care need within the target population. The framework estimated two quantities i.e.: how often a particular service is required by the target population (requirements), and how often that service can be performed by the available health workforce (supply). Estimating the first required the identification of the leading health conditions which drive the need for health care (according to whatever criteria are deemed appropriate by planners in their particular context, such as rates of mortality and/or morbidity), knowledge of the size of the population and the incidence or prevalence of each leading condition within it, the range of health care services required to address each condition, and the frequency with which each service is required by persons with those conditions. In addition to aligning services with the health needs of the population, consultation and engagement with key stakeholders allowed for the consideration of contextual factors impacting this alignment, such as barriers and enablers to accessing services. In this way, planners could explicitly consider issues of access or inequalities in how services are organized and provided.

In addition to reviewing the leading causes of mortality according to administrative records in each district, a set of stakeholder focus groups was conducted in each district. There was one focus group with health workers, another with the community health boards, and a third with

representatives from both groups. The focus groups that included community members used local languages (Nyanja) for clarity as needed. The purpose of these focus groups, was to obtain consensus from the participating stakeholders as to which health condition they felt was most burdensome in terms of mortality and morbidity experienced by the people in the districts. In this pilot application, the leading health challenge identified was HIV/AIDS in Chibombo. This was the condition perceived by participants as being the most burdensome – in terms of morbidity as well as mortality – for their communities.

Thereafter, lists of the competencies required by the health workforce to manage patients with each condition were compiled. This process began with a draft list based on the standards of care for each condition from the Integrated Technical Guidelines published by the World Health Organization’s regional office for Africa, 2010. This initial list was amended by the project team, and then finally validated by Zambian clinicians with expertise in management of those conditions in the Zambian context.

The epidemiological component of the framework – i.e. the combined incidence and prevalence of HIV/AIDS among district residents – was obtained from district-level administrative data. The expected distribution of patients by care setting (health center, district hospital), as well as the proportion of ill patients requiring each service within those settings, were estimated through consultations with administrators and clinicians in each district, supplemented by administrative records on the volumes of service use in each setting. The latter source was deemed insufficient on its own to estimate appropriate service levels because the known shortage of HRH means that existing service levels underestimate those that are actually needed. These two points of information (distribution of patients by care setting and proportion in each care setting requiring the competency) reflect the level of service component of the framework – that is, the number and type of health care services patients in the district should receive given that they have HIV (i.e. are deemed to medically require and would receive if sufficient resources were available), (Goma et al., 2013).

### **3.6.1 Data collection procedure/Instruments of Data Collection (Research Tools)**

To obtain data needed to estimate the supply of services in Chibombo district, a questionnaire for Health Workers was developed asking about the following: (Appendix I)

- Whether they provided direct patient care (participation level or proportion)
- Whether they worked part-time or full-time (activity level)
- Whether they felt they had the knowledge, skills and judgement to safely perform each of the services listed without supervision (perceived competency prevalence)

Questionnaires were completed for each respondent. Interviews were conducted in English. Participants confirmed their responses as they were recorded to ensure accuracy

### **3.6.2 Data Quality Control**

Research instruments were pre –tested to increase the validity and reliability of the responses. Pre-testing was done on some respondents in Chibombo District. These respondents were not included in the study sample. Interviewers were well trained before participating in the study. Regular cross checking, inspection and scrutinizing of information on the research instruments was done to ensure accuracy, relevance, completeness, consistency and uniformity of the data collected.

The questionnaire was adapted from previous work by the research team and was pilot-tested with a select group of professionals in a different district

### **3.6.3 Sampling Methods & Sample Size**

The questionnaire was administered to all Health workers that could be located at the four health facilities included in the study ( Chipembi, Ipongo, Chitanda RHC's & Liteta District Hospital. A total of 21 health workers completed the questionnaire. The sampling procedure was purposive sampling. All the HRH personnel available and willing to be interviewed at the time of the study were interviewed in the stated health centres, both day and night, which could indicate the proportion of all district health workers included in the sample.

**INCLUSION CRITERIA:** All qualified health workers (Doctor, nurse, midwife, environmental health technician, pharmacist, etc.), male or female, aged 15 to 60 years old, working at the selected health facilities in Chibombo district.

EXCLUSION CRITERIA: Non-qualified health workers, aged below 15years, male or female, working at the selected health facilities in Chibombo district.

The level of competence was reflected in 5 scales. The response levels were as follows;

**1 = “I am not competent to perform it”**

**2 = “I have performed it in the past, but I am not currently competent”**

**3 = “I am competent to perform it with supervision”**

**4 = “I am competent to perform it without supervision”**

**5 = “I am competent to perform it and could supervise others performing it”.**

**(Goma et al., 2013)**

For this study, a response scale of 1 to 3 was taken as not competent and a response scale of 4 and above competent.

The level of competence according to age, gender, years of service and level of competence was determined in the 7 major domains:

- 1) Public Health, Prevention and Infection Control
- 2) Occupational health
- 3) Research
- 4) Care for HIV/AIDS patients
- 5) Palliative Care
- 6) Education
- 7) Administration and Support

For the specific variables representing competencies under each domain, refer to Appendix I- the questionnaire.

### **3.7 Data Management and Analysis**

#### **3.7.1 Quantitative Data**

Descriptive statistics such as mean, frequencies and percentages was used to describe and summarize the data.

The Prevalence of competencies of HRH teams in the various health centres was established. Data was sorted and coded, using the IBM Statistical Package for Social Sciences (SPSS) software version 20. Data was presented using charts (multiple bar charts), graphs and frequency distribution/tables.

### 3.7.2 Qualitative Data

In-depth interviews were conducted with 3 key informants namely the District Medical Officer, District Human Resources Manager and the Clinical Care officer from the Chibombo District Health Management Team offices, to collect additional qualitative data. The Qualitative data (interviews) were transcribed and similar themes in the interviews were reported. As only 21 respondents took part in the quantitative part of the study; these interviews were used to assess whether or not the health workers at the various RHC's in Chibombo district were competent enough to manage HIV/AIDS care and what factors affected the observed competency levels of the health workers at the rural health facilities.

The instrument used was a questionnaire/set of questions APPENDIX II.

### **3.8 APPROVAL FROM ETHICS COMMITTEE**

The University of Zambia Biomedical Research Ethics committee approval was obtained for the study and the HRH Research to Action Principal Investigator gave permission to use the secondary data.

## 4.0 RESULTS

### 4.1 SOCIO – DEMOGRAPHIC FACTORS

A total of 21 health workers were purposively sampled and interviewed using the HIV/AIDS competency questionnaire. The general characteristics of the respondents included in the analysis were skills and competencies according to the profession, age, gender and years of service only. The responses were based on self-assessment of the level of competency in the HIV/AIDS management skills. In table 1 below, the frequencies of distribution are illustrated. It was observed that the majority of health workers interviewed were from an Urban hospital i.e., Liteta District Hospital (71.4%). Whereas the rest were from the other RHC's (28.6%). The standard deviation was 1.209. The majority of health workers interviewed in terms of profession were nurses (38.1 %) followed by midwives (14.3%) and clinical officers (14.3%). Only 9.5% of the total number of health workers interviewed were doctors and environmental health technicians. The rare health worker type that participated in the study were the pharmacy technician, nutritionist and physiotherapist (4.8%). No pharmacists were found/interviewed in Chibombo (0%). The Gender of the health workers was almost equally distributed between males (47.6%) and females (52.6%). The years in service varied with the majority of health workers having served a period of less than 4 years, i.e. 1 to 4 years (28.6%); with those who had served a period of 5 to 9 years ( 23.8%) and 20 to 24 years ( 23.8%), being the most frequent number of years served. Only 9.5% of the health workers had served a period of 15 to 19 years and the most infrequent period of years served was 10 – 14years (4.8%), 25 to 29years (4.8%) and 30 to 34 years (4.8%)

**Table 1: Distribution of socio-demographic characteristics amongst health workers in Chibombo District**

<b>Variable</b>	<b>Category</b>	<b>Total</b>	<b>%</b>
	All	21	100
<b>Residence</b>	Rural	6	28.6
	Urban	15	71.4
<b>Age (years)</b>	SD	1,209	
<b>Age groups</b>	20 – 29	6	28.6
	30 – 39	5	23.8
	40 – 49	4	19.0
	50 – 59	6	28.6
<b>Profession</b>	Doctor	2	9.5
	Nurse	8	38.1
	Midwife	3	14.3
	Clinical Officer	3	14.3
	Environmental Health Technician	2	9.5
	Pharmacy technician	1	4.8
	Nutritionist	1	4.8
	Physiotherapist	1	4.8
<b>Gender</b>	Male	10	47.6
	Female	11	52.6
<b>Number of years in service</b>	1 – 4	6	28.6
	5 – 9	5	23.8
	10 – 14	1	4.8
	15 – 19	2	9.5
	20 – 24	5	23.8
	25 – 29	1	4.8
	30 – 34	1	4.8

## **4.2 QUANTITATIVE RESULTS**

The level of competence in HIV/AIDS care and management, for purposes of this study, was a baseline of 75%. Any level of competence below 75% was considered not competent, and above 75% competent. This is because when dealing with human lives in medicine, an acceptable percentage of competence is imperative to guarantee an acceptable and professional level of care.



HEALTH FACILITY	Profession	Domains							Mean level of competence	Competence	Gender	Age	Years of Service
		1	2	3	4	5	6	7					
Liteta	Doctor	87.5	100.0	44.4	84.3	83.3	100.0	100.0	85.7	Competent	Male	50 - 59	24
	Doctor	87.5	83.3	44.4	94.1	100.0	91.7	100.0	85.9	Competent	Male	20 - 29	2
	EHT	62.5	25.0	0.0	19.6	16.7	0.0	12.9	19.5	Not competent	Male	20- 29	2
	Midwife	62.5	33.3	0.0	74.5	33.3	66.7	22.6	41.8		Female	30-39	7
	Midwife	50.0	50.0	0.0	70.6	83.3	33.3	61.3	49.8		Female	40-49	21
	Midwife	62.5	83.3	0.0	74.5	16.7	66.7	32.3	48.0		Female	50-59	29
	Nurse	50.0	66.7	0.0	60.8	33.3	50.0	22.6	40.5		Female	30-39	5
	Nurse	50.0	50.0	0.0	72.5	83.3	66.7	32.3	50.7		Female	20-29	2
	Nurse	75.0	91.7	33.3	88.2	83.3	100.0	87.1	79.8	Competent	Female	40-49	20
	Nurse	62.5	16.7	0.0	52.9	16.7	33.3	0.0	26.0	Not competent	Female	20-29	5
	Nurse	75.0	100.0	11.1	86.3	83.3	100.0	64.5	74.3		Male	30-39	6
	Nutritionist	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Female	30-39	2
	Pharmacy technician	37.5	58.3	55.6	39.2	66.7	100.0	32.3	55.6		Male	20-29	1
Ipongo	Clinical Officer	75.0	91.7	33.3	72.5	66.7	75.0	41.9	65.2		Male	20-29	2
Chitanda	Clinical Officer	87.5	91.7	22.2	64.7	66.7	100.0	16.1	64.1		Male	50-59	20
	EHT	62.5	25.0	0.0	35.3	0.0	58.3	35.5	30.9	Male	50-59	27	
	Nurse	75.0	100.0	11.1	72.5	83.3	91.7	61.3	70.7	Female	50-59	29	
Chipembi	Clinical Officer	75.0	100.0	11.1	84.3	100.0	100.0	93.5	80.6	Competent	Male	40-49	13
	Nurse	87.5	75.0	77.8	72.5	100.0	100.0	58.1	81.6	Competent	Female	30-39	9
	Nurse	37.5	41.7	0.0	54.9	66.7	50.0	25.8	39.5	Not competent	Female	50-59	31

**Table 2: Distribution of competency level in the 7 domains, in the 4 health facilities, Chibombo District**

*KEY:*

*Domain 1: PUBLIC HEALTH, PREVENTION AND INFECTION CONTROL*

*Domain 2: OCCUPATIONAL HEALTH*

*Domain 3: RESEARCH*

*Domain 4: CARE FOR HIV/AIDS PATIENTS*

*Domain 5: PALLIATIVE CARE*

*Domain 6: EDUCATION*

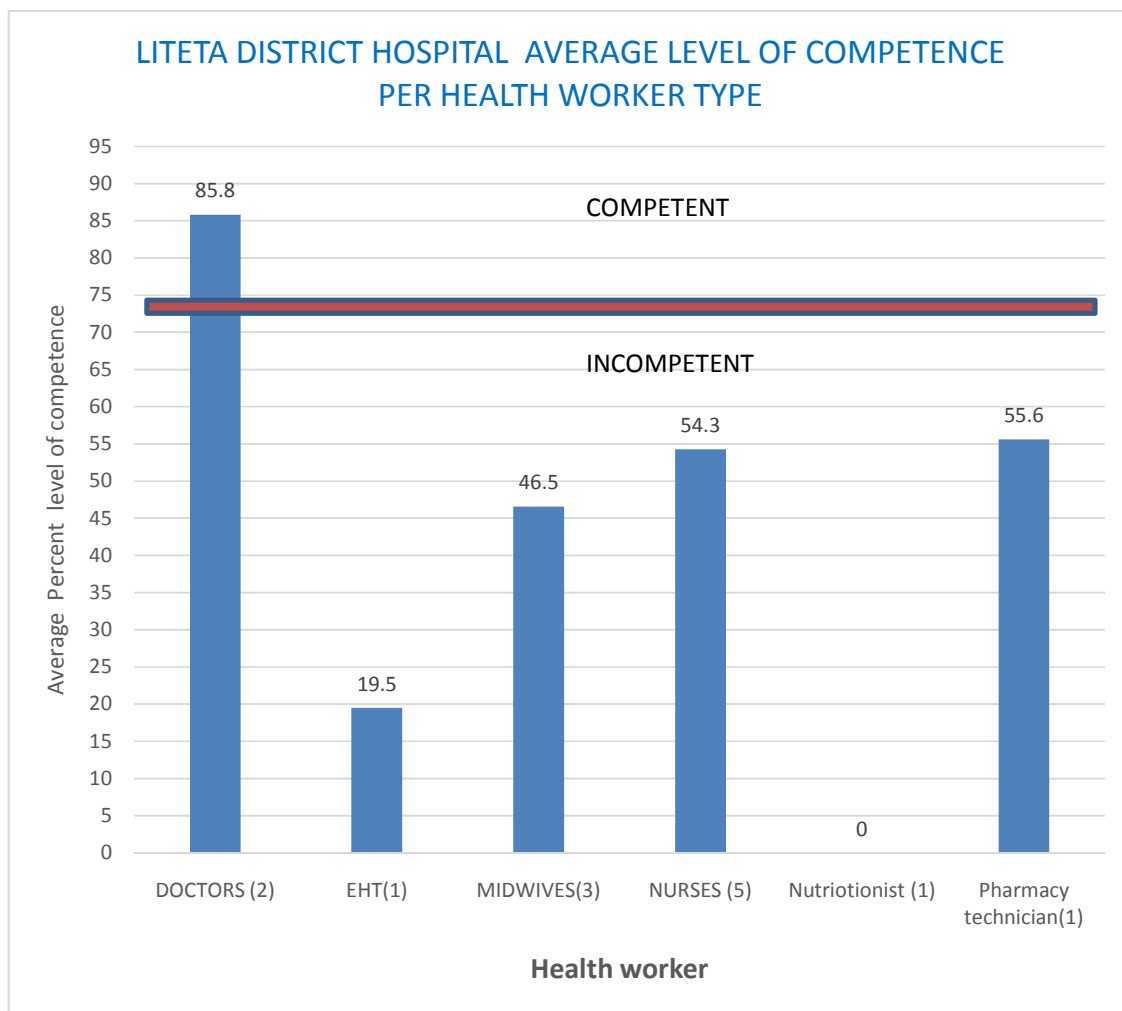
*Domain 7: ADMINISTRATION*

**Table 2** shows a summary of the level of competence of all the health workers interviewed at each facility, in each of the 7 main domains of competency. These are measured against the profession, age, sex and years of service of each health worker.

As illustrated in Table 2, based on the 75% cut off level, for overall competence in the 7 domains of HIV/AIDS management and care; of all the health workers who participated in the study, only the 2 male doctors, and one female nurse were competent in HIV/AIDS management and care at Liteta District Hospital. Where as in Ipongo and Chitanda RHC's all the health workers were not competent. Chipembi on the other hand, had 2 competent health workers; i.e. a clinical officer and a nurse.

1. The distribution of the listed treatment and care competencies amongst health personnel in the selected health facilities in Chibombo district.

**a. LITETA DISTRICT HOSPITAL**

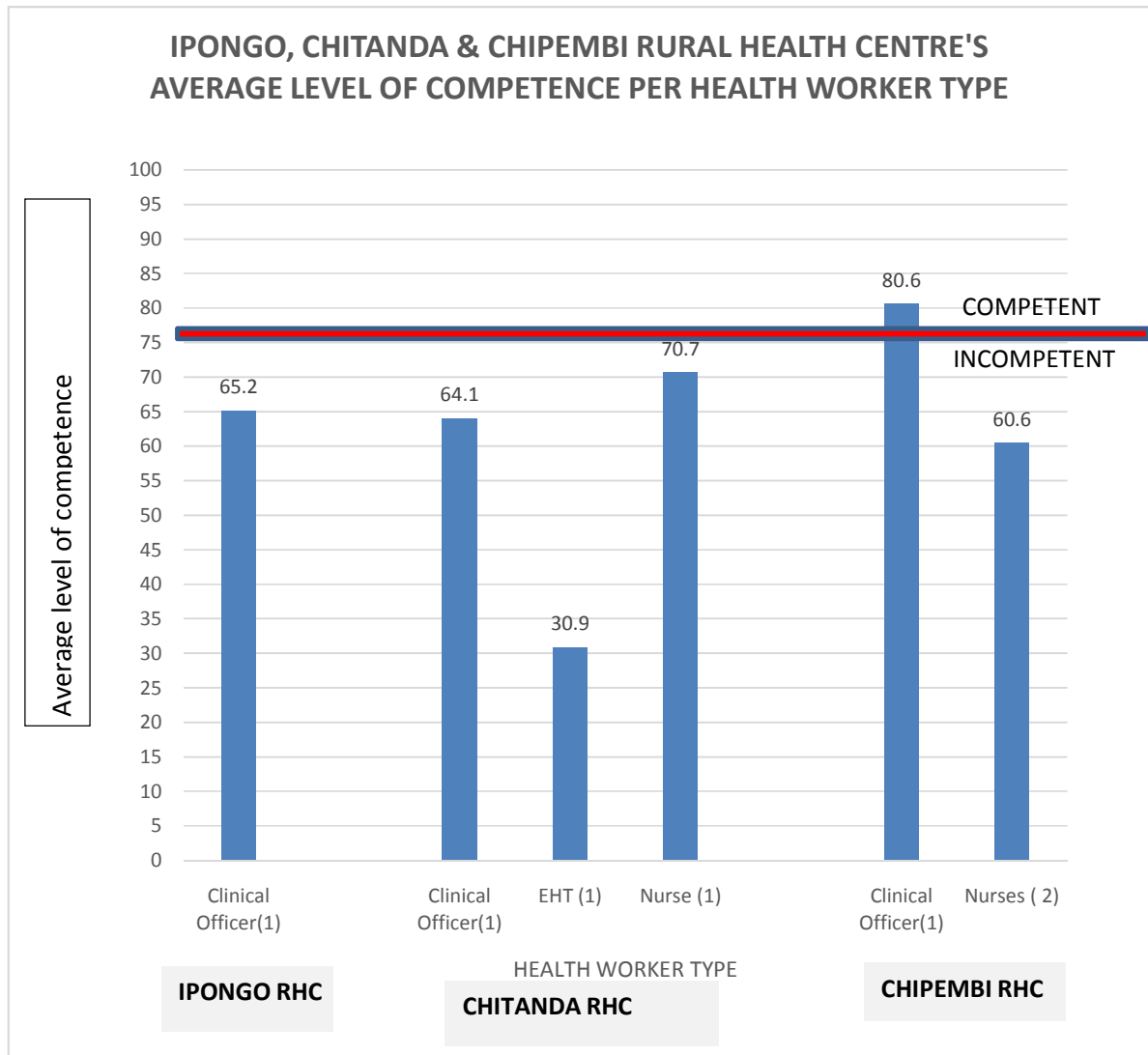


**Figure 9: Average level of competence per health worker type in Liteta District Hospital**

The average level of competence for the 2 doctors was 85.8%. The doctors were competent to manage HIV/AIDS care in Chibombo district. The other health workers who participated in the study, on average were not competent. Figure 9.

## 1. IPONGO, CHITANDA & CHIPEMBI RURAL HEALTH CENTRES

Figure 10 illustrates that from the 3 Rural Health Centres that were part of the study, all the health workers in the 3 facilities, per health worker type were not competent, apart from the clinical officer in Chipembi who scored above 80%.



*Figure 10: Average level of competence per health worker type, per facility*

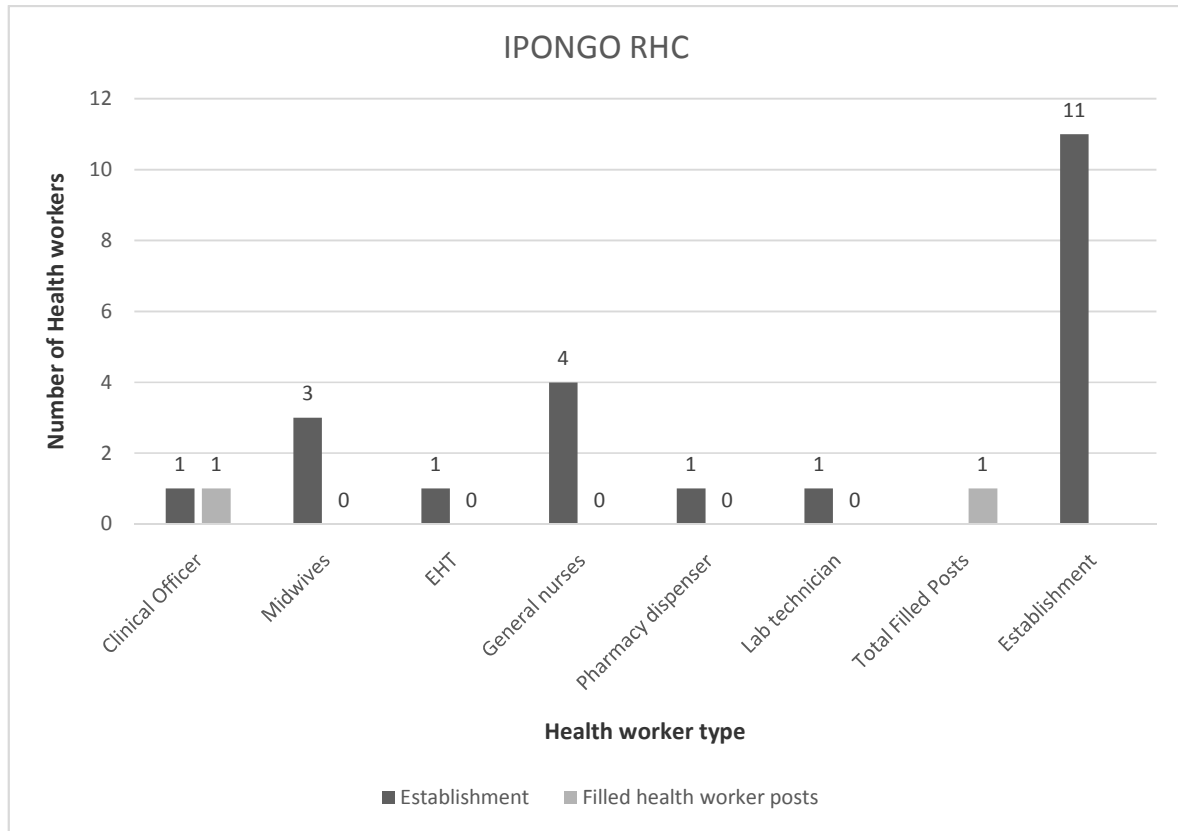
**2. Measurement of the filled health worker posts against the establishment at the selected rural health facilities, to determine the missing relevant health workers.**

**Summary Table of Establishment Vs Filled Health Posts at the three Rural Health Facilities in Chibombo District.**

HEALTH FACILITY	Clinical Officer	Midwives	EHT	General nurses	Pharmacy dispenser	Lab technician	Total Health Workers	Number of Missing health workers
Establishment	1	3	1	4	1	1	11	
Chitanda	1	0	1	1	0	0	3	8
Chipembi	1	0	0	2	0	0	3	8
Ipongo	1	0	0	0	0	0	1	10

***Table 3: Establishment vs Filled health worker posts***

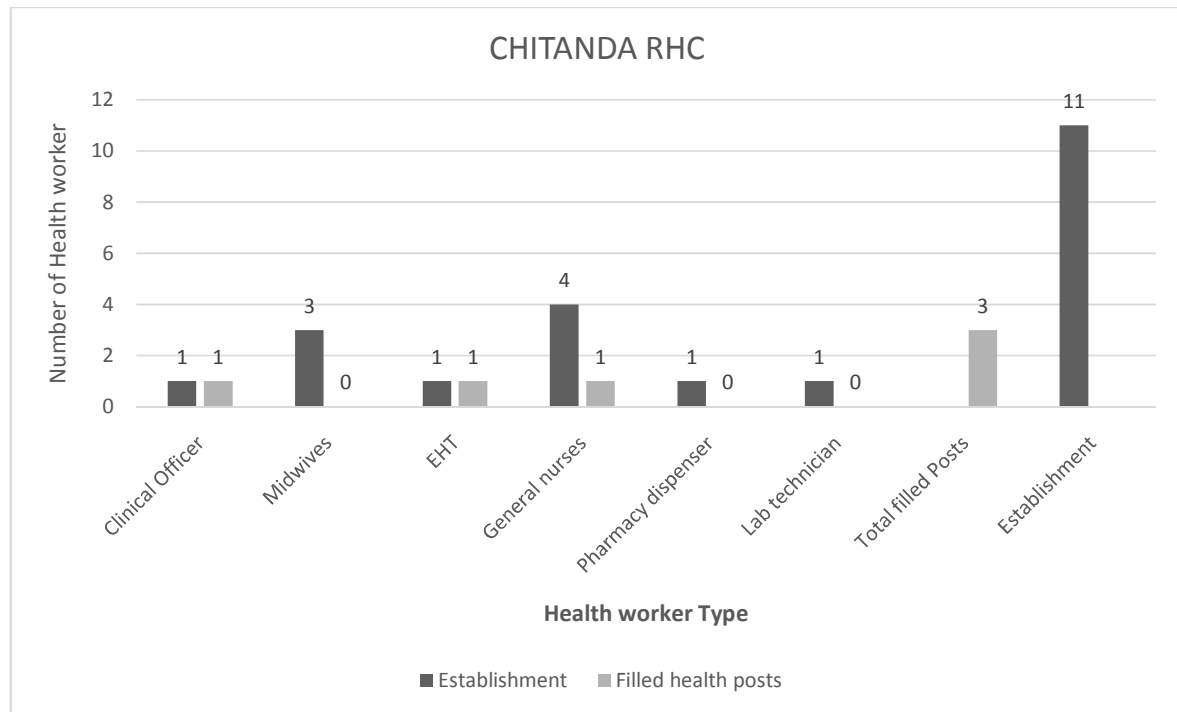
## IPONGO RURAL HEALTH CENTER



**Figure 11: Ipongo RHC filled Health worker posts**

Ipongo only had one health worker working at the facility at the time of the interview. It lacked critical health workers like the midwives, pharmacy dispenser and lab technician. Based on the recommended health worker posts and number, the facility had 10 health worker posts that were not filled. Thus the facility was not functioning optimally.

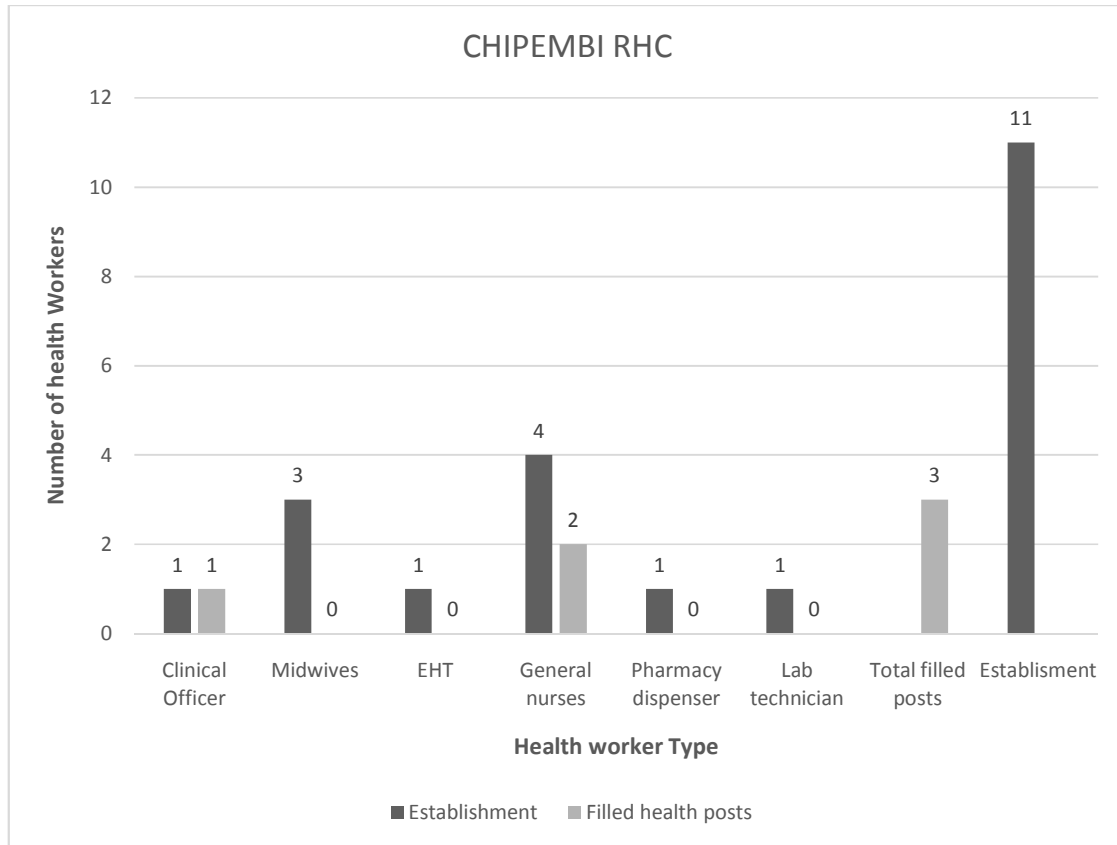
## CHITANDA RURAL HEALTH CENTER



**Figure 12: Chitanda RHC Establishment Vs Filled health worker posts**

Chitanda had 1 clinical officer, 1 EHT and 1 general nurse with a total of 8 missing health workers. It was missing critical health workers like the midwives, pharmacy dispenser and laboratory technician.

**CHIPEMBI RURAL HEALTH CENTER**



***Figure 13: Chipembi RHC Establishment Vs Filled Health Worker posts***

Chipembi RHC had 1 clinical officer and 2 general nurses which meant that 8 health worker posts were not filled. The RHC lacked the critical health workers like the midwives, pharmacy dispenser and laboratory technician.

Based on the establishment, all 3 RHC’s had a critical shortage of health workers.



### 4.3 QUALITATIVE RESULTS.

#### **Factors affecting the level of competence of the health workers in Chibombo district health facilities.**

Three focal persons/key informants from the Chibombo District Health Management office were interviewed to validate the quantitative findings. They were the Chibombo District Medical Officer (DMO), The Chibombo Human Resources Manager (HRM) and a previously acting Chibombo Clinical Care Officer (CCO). All three had worked in Chibombo District for more than 3 years with the health personnel at the district hospital, RHC's and health posts.

The study interviews revealed the following results;

The key informants were asked if they believed the health workers in the health facilities in Chibombo were competent to manage HIV/AIDS. The DMO and the HRM stated that the health workers at the RHC's were not competent enough to provide adequate care and management of HIV/AIDS patients in Chibombo District. The medical staff at the Liteta District Hospital (Referral Hospital) on the other hand, were competent enough, and managed HIV/AIDS patients adequately, as they are the referral center for all HIV/AIDS cases. The CCO stated that the health workers at the rural health facilities were competent but become incompetent due to large patient numbers that they needed to attend to.

*'Liteta District Hospital has a mix of health personnel, so they are competent enough to provide HIV/AIDS care. A lot of officers have undergone training in HIV/AIDS and those that have undergone training are very competent and able to manage HIV/AIDS .Because Liteta Hospital has a mix of skills, there are doctors, clinical officers, lab personnel and nurses. Most of them have been trained, in both adult and child health as well as mother to child transmission' DMO,*

1. The 3 key informants stated that there are several factors that affect Competency levels;
  - a. Intrinsic Factors – Inherent factors, that have to do solely with the health worker's strengths or limitations.
  - b. External Factors – External factors that affect the level of competence of the health workers and the type of service they deliver.

**a. INTRINSIC/ INHERENT FACTORS**

There were several intrinsic factors that were identified that affected the level of competence of health workers in Chibombo District;

**I. Lack of training in HIV/AIDS management.**

The majority of health workers in the RHC'S were not confident enough to provide adequate HIV/AIDS care as they had not undergone any formal training.

*'In the other facilities, in the outskirts of Chibombo district, health workers haven't undergone training, so they are not confident and don't feel competent enough to provide HIV/AIDS care. DMO*

**II. The nature of the training of health workers at undergraduate level was inadequate.** They did not get sufficient training in the management of HIV/AIDS.

**III. Failure to concentrate or practice what they were taught in college,** so health workers in RHC's forget this knowledge. This leads to incompetence.

**IV. Lack of consultation.** The health workers in the RHC'S did not have colleagues to consult with when they encountered a challenging situation at the RHC's. They did not read in order to update their knowledge and skills. They did not have access to changing information or access to the internet to broaden their knowledge. This affected their level of competency

*'Health workers in Rural Health Centre's are not able to consult. They do not have time to read. Each health facility has guidelines, of course but these are not enough because medicine keeps changing every day. They do not have access to the internet so they cannot update the knowledge and skills they have acquired. They rely on the books that are distributed at the facilities which are usually not of a recent edition. Since they overwork, i.e. in some facilities health workers work almost 24 hours in a day and find it very difficult to find the time to revise.'* HRM

- V. **Lack of Necessary competencies** - Many competencies are required for the management of HIV/AIDS that the health workers did not have. E.g. counselling, clinical investigations, history taking. These competencies should have been taught to nurses who provide treatment to patients especially in RHC's.

b. **EXTRINSIC/ EXTERNAL FACTORS**

The key informants stated that the following extrinsic factors affected the level of competence amongst rural health workers;

1. **The Establishment** – The establishment was still centralized and determined by the government, i.e. the health workers who should be posted to each center and in what numbers. It did not depend on the specific requirements of the clients at the health facilities. The establishment was not client based but government determined which health worker to send to a facility. Recruitment was done centrally by the headquarters, Ministry of Health and the DHMT had no power or authority to conduct the decentralized recruitment.

*'Some of the 44 facilities in Chibombo have not appeared on the Establishment, meaning the ministry has never posted anyone to these sites. These centres have already opened so health workers meant for another facility are posted there and provide the service. Eg. Pemba and Mutemba are two big facilities that government has not yet approved on the establishment. Malombe has been approved, it has not yet been uploaded on the payroll. So, no one has been recruited for Malombe or Mutemba. This means that there is a critical shortage of staff in many places with only one health worker at the site'. HRG*

2. **Serious Shortage of Staff - Patient overload/Workload** – Each health facility in a rural area attended to about 500 or more patients every day. Usually there was only one health worker available at any given moment. The health worker available would get overwhelmed and because of large numbers could not apply themselves competently. HIV/AIDS was just one of the challenges they had to contend with.

*‘The biggest challenge we have is understaffing. The staffing levels are so low, such that they are unable to fight against all these vices because of low staffing levels. For example, someone is trained and inducted in the area of environmental health but since he is the only one at the health post he becomes the mid wife, the clinical officer, the doctor, the laboratory technician and the pharmacy dispenser. He is everything. So in the areas where they are trained to manage out breaks and epidemics, they will not put in the best, meaning even their output will be almost negligible, because they have just sprayed over their skills to cover everything that they are not supposed to do’. HRM*

3. **Infrequent trainings** – There were no in house or in service trainings offered to the health workers at the rural centres due to inadequate resources so the health workers were not able to refresh their knowledge or consult.

*‘The other challenge is administrative. We do not most of the times, arrange for workshops /in-service trainings because of the financial limitations involved. We rely on Partners. Partners have specific catchment areas, and they will always request to be given names of workers to be trained only in their area of interest. Others will be left out. The other challenge is infrequent trainings. Sometimes an officer will wait maybe for one to three years before having the training. The DHMT should arrange an in house, in service training, which is important. Because DHMT do not have the capacity most of the time they do not have funding. We rely on our partners to assist us’ DMO*

4. Other extrinsic factors were **General Hardships** such as;

(a) **Personal challenges** i.e.; poor living quarters, no electricity as source of energy, long distance to the banks

(b) **Work Challenges** i.e.

- **Bad road infrastructure- impassable roads** - Delivery of all drugs must be done before the rainy season because the roads were impassible in the rainy season. Most of the district had bad road infrastructure. Most of the rural health facilities had outdated tools and/or medical equipment.
- **Interference from the chiefs.** The chiefs dictated the type of treatment the health workers were allowed to give to the respective community and castigated the health workers often, based on accusations from the community.
- **No appreciation from patients** – The health workers felt that their service to the communities where they were working, was never appreciated. This was very discouraging for the health workers.
- **Parallel programs** – Other partners like Centres for Disease Control, PLAN International and CARE international were constantly calling the very few workers for training to acquire new skills. These trainings would sometimes take about a month, and hence the facility where the health worker belonged was disadvantaged as there would be no qualified personnel to attend to the patients in the health workers absence.

## 5.0 DISCUSSION

The first objective of this study was to determine the distribution of the listed HIV/AIDS treatment and care competencies amongst the health personnel in the selected health facilities in Chibombo District. According to the findings of this study, both from the qualitative and quantitative data, Liteta District Hospital, which is a referral hospital in Chibombo district had competent health workers to manage HIV/AIDS. Although only 3 health workers from the total number interviewed were competent in HIV/AIDS management and care and scored above 75%, only a small portion of the total health workers in the hospital participated in this study. According to Table 2, the two health workers were the doctors, aged 20 to 59, with different years of service. This was an expected result because Liteta District Hospital is a referral hospital, which means that most HIV/AIDS cases and their management are referred there. This was consistent with the findings from the interviews with the DMO and the paper by Martin et al., 2006, in which they stated that the primary function of the referral hospital is to provide complex clinical care to patients referred from lower levels and basic generalist doctors should be trained in a range of skills across all levels of care, reflecting the facilities in which they would work. It was therefore necessary for the doctors to have the skills necessary to manage such cases referred there. Their undergraduate training and curriculum is such that, many of the listed care competencies are part of their usual training, so they had the skills required to manage HIV/AIDS patients. The other one health worker from the 11 interviewed, with the HIV/AIDS listed competencies was a female nurse aged 40 – 49, with 20 years of experience. She was competent because she had probably undergone a lot of training in management of HIV/AIDS and from treating a lot of patients, she had acquired some necessary skills and experience. Liteta District hospital had a total of 66 health workers, distributed across the different worker types but only 13 of the 66 health workers took part in the study. According to the *Chibombo District Community Head Office 3<sup>rd</sup> Quota Staff returns of 2013 (APPENDIX III)*, Liteta District hospital had 4 doctors, 9 clinical officers, 2 EHT's, 30 Nurses, 9 midwives, 4 physiotherapists, 4 pharmacists, 3 lab technologists, 1 radiographer and 1 dentist. This mix of health workers was sufficient and had the necessary level of competence to manage HIV/AIDS care, as was confirmed by the District Medical Officer in her interview. The other health workers had very low average competencies, especially the nutritionist, which could be attributed to the fact that their profession required very few skills in HIV/AIDS management and he had not undergone any in-service training.

One would expect that the nutritional aspect of the management of the disease would be a skill the nutritionist would have, but this was not part of the listed care competencies

Therefore, even though the majority of the health workers interviewed did not have the necessary skills and competence required to manage HIV/AIDS care at a referral hospital like Liteta, the number and mix of health workers there would be able to manage HIV & AIDS care. In spite of the fact that of the 11 interviewed, only 3 were competent, we can confidently assume that of the other 55 health workers that did not take part in the study, the majority were competent in the skills needed to manage HIV/AIDS care, as was confirmed by the DMO in her statement that the medical staff at Liteta District hospital are competent in both adult and child health as well as mother to child transmission of HIV/AIDS.

In the RHC's on the contrary, most of the health workers in the 3 facilities (Ipongo, Chitanda and Chipembi RHC'S) were not competent. Chipembi had one clinical officer who was competent scoring over 80 % (Table 2). Chipembi also had another Nurse who scored over 80% with 9 years of working experience. But an average of the competence level of the 2 nurses, gave them a competency level of 60.6 % which meant that an average of the 2 nurses competence level in the management of HIV/AIDS care showed that they were not competent. This was consistent with the findings from Ministry of Health, HRH Strategic Plan, 2005 which revealed that the shortage of healthcare personnel is particularly acute in rural areas, where more than half of the health centres employ only one qualified staff member and many function without any trained health personnel.

The second objective of this study was to measure the filled health posts against the establishment in the selected rural health facilities and match these with the missing relevant health workers needed. The ministry of health have a defined establishment, i.e. a standard of health service required to meet the needs of a given community that a health facility serves. This establishment is such that at every Rural Health Center there should have 11 health workers for the facility to function optimally ( Chibombo Human Resources for Health Manager, interview, 2013) in providing a service to the community. According to the findings of this study, Ipongo RHC only had 1 health worker, of the total 11 health workers needed. This was a serious deficit of health workers in this center which would mean that the health worker there would be overwhelmed by the number of patients he had to see each day, and competency levels would therefore not be adequate. Chitanda and Chipembi RHC's had 3 workers with a deficit of 8 health workers that were needed at the

facility. This all impacted negatively on the management and care of HIV/AIDS patients, based on the type of competences required.

Most of these rural health facilities did not have the capacity to provide adequate care for HIV/AIDS patients as they did not have a laboratory technician or even a pharmacy dispenser, and laboratory tests and medication are important in the treatment of HIV/AIDS patients. Most of the patients therefore would have to be referred to the District hospital for treatment and this was a major challenge for the patient's as they would have to travel large distances to access these services.

The situation in the 3 Rural health facilities was representative of the other facilities with similar types and numbers of health workers as is seen from the Chibombo Human Resources for Health Register of 2012. This was consistent with the World Health Organisation 2006 HRH strategic planning findings and that of Makasa, 2009 which showed that most health workers live and work in cities. This imbalance is common to almost all countries and poses a major challenge to the nationwide provision of health services. Its impact, however, is most severe in low income countries. This was also consistent with other findings like that of Dreesch, who demonstrated from country evaluations of disease oriented programs in Africa, that the lack of appropriately trained and motivated health workers is one of the major bottlenecks in implementing evidence-based health interventions to improve maternal and child health, and to address HIV/AIDS, malaria and tuberculosis (Dreesch et al., 2005). According to the World Health Organisation report of 2006, insufficient numbers and types of qualified health workers in remote and rural areas impedes access to health-care services for a significant percentage of the population, slows progress towards attaining the Millennium Development Goals and challenges the aspirations of achieving health for all.

The interviews with the DHMT confirmed the findings that the health workers in the rural health facilities are not competent to manage HIV/AIDS care due to intrinsic factors (inadequate undergraduate training, lack of in-house training) and extrinsic factors (general hardships and poor working conditions like patient overload and poor equipment). The Ministry of Health HRH Strategic Plan, 2005 reported that the expansion of provision of comprehensive HIV/AIDS services required additional health workers at all levels of care, and though this was a challenge for the whole country, the shortage of healthcare personnel was particularly acute in rural areas like Chibombo where more than half of the health centres employed only one qualified staff member and many functioned without any trained health



workers. This qualifies the deductions from the President's Emergency Plan for AIDS Relief, 2008 Country Profile: Zambia National HIV prevalence which demonstrated that efforts to provide lifesaving HIV medications to infected persons had been complicated by a lack adequately trained health care providers who would be available to deliver these complex medications safely and effectively .Thus, there was a serious problem of competence to manage HIV/AIDS in Chibombo as was evidenced by the competence levels observed as well as the missing health worker types working at most of the rural health facilities.

The third objective was to determine the factors that affect the level of competence in the health workers in Chibombo district health facilities. The factors both intrinsic (lack of in-house training, inadequate undergraduate training, etc.) and extrinsic (establishment, work hardships, etc.) affected the level of competence exhibited in the RHC's. This was consistent with the findings that showed that health facilities in a rural area like Chibombo were greatly compromised because of staff shortage and demotivation. Staff there were demotivated due to a number factors, including poor salary and conditions of service, inadequate retention allowances and benefits, lack of housing/accommodation, lack of education facilities for children, low intellectual stimulation, poor working environment (availability of drugs, equipment, supplies including transport), few social amenities, lack of research and training opportunities, manpower shortages resulting in increased workload and compounding all the above issues, little access to secondary income opportunities, little recognition from supervisor & employer, and lack of career progression/promotions (Ministry of Health - Health Sector Strategic Plan, 2008). All these factors do have an impact on the level of competence and as was observed from the quantitative results and the interviews, it was not surprising that the level of competence in HIV/AIDS management and care, especially in the RHC's and HP's was very low.

## 6.0 SUMMARY OF KEY FINDINGS

The key findings of this study from the quantitative and qualitative data collected are;

- Liteta District Hospital had the proper mix and type of health workers to manage HIV/AIDS in Chibombo District.
- The critical health workers at Liteta District Hospital were competent enough in the management of HIV/AIDS in the 7 domains (Public health prevention and infection control, Occupational health, Palliative care, Research, Administration, and Care for HIV/AIDS patients).
- Even though some of the health workers interviewed at the District hospital (Liteta) had very low levels of competency, as a large hospital of 66 health workers, where only 11 were interviewed, we can conclude that all the necessary skills needed to manage HIV/AIDS could be found in the health teams at the hospital as was stated by the Chibombo DMO in her interview.
- Chitanda, Ipongo and Chipembi RHC's, in Chibombo district did not have health workers at the facilities that were competent enough in the skills required to manage HIV/AIDS, except for one experienced health worker.
- The 3 Rural health facilities had only one health worker or a maximum of 3 health workers working at the facilities, giving a deficit of 8 to 10 health workers. This situation was compounded or made worse by the work or patient overload or the large number of patients each facility was meant to serve. Competency was affected by these factors.
- Factors that influenced the level of competence in HIV/AIDS management in Chibombo district were; Intrinsic –i.e. lack of proper or in house training, inadequate undergraduate training, insufficient interaction with other health workers who were more qualified for consultation, not reading. Extrinsic factors that affected the level of competence were; the establishment in a centralized system of governance; poor infrastructure and living standards and no access to amenities that make living in the rural areas manageable.

## 7.0. LIMITATIONS OF THE STUDY

- The limitations of this study were
  - (a) Only a few workers were interviewed and only 4 of the 34 health facilities in Chibombo district were included in the original study. Though representative, the study did not have the adequate numbers to calculate p values and apply other statistical methods to generalize the findings.
  - (b) This study was based on a parent study, and therefore, the findings were restricted to the parent study findings. The sample size could not be adjusted and was very small even though a purposive sampling method was used to sample, and therefore the findings could not be generalized to the health worker population.
  - (c) This study was based on a self –assessment type of questionnaire, so we expected biases like over rating or under rating of one’s competence levels.
  - (d)The other limitation was using the same skill set to determine levels of competence amongst health workers. This may not have been an accurate assessment of skills, as different health workers receive different undergraduate type of training and therefore have different skills sets. Therefore, by virtue of the type of training a medical doctor undergoes, he was expected to be competent in almost all the listed competencies, where as a nutritionist, would most likely score very low.
  - (e)Another limitation of this study was that it was subjective. A different approach could be used i.e.; interviewing patients themselves from a list of services they were meant to receive at a facility and rating the gaps that were in the level of care provided from the patients perspective to assess level of competence.

## 8.0 CONCLUSION and RECOMMENDATIONS

### 8.1 Conclusion

The study revealed that Liteta District Hospital has the proper mix of health workers required to manage HIV/AIDS in Chibombo district as a referral center. The doctors had the highest HIV/AIDS management competence (over 80%) regardless of the age or the years of service. The majority of the health workers at the rural facilities were low in competence level and were not competent enough, as teams, to manage HIV/AIDS. This was because of several factors such as; health worker's lack of skills in HIV/AIDS management, patient overload and establishment which affect level of competence and care provided. Almost all the RHC's and health posts had inadequate health personnel numbers and type's .The type of teams at the health centres could not provide the necessary care needed as most were missing very important health worker types like the midwives, laboratory technicians and the pharmacy dispenser. Instead of the 11 health workers needed for the facility to function optimally, the 3 rural health facilities had about 8 to 10 unfilled health worker posts. This impacted negatively on the level of care and competence at the respective rural health facilities. The qualitative data shed more light on the findings and it can be concluded that the level of competence in the RHC's was not adequate to manage HIV/AIDS care in Chibombo district.

### 8.2 Recommendations

The recommendations for the study are as follows;

This study should be expanded to include a lot more of the sites where the questionnaire was administered. This would give more numbers of participants and a more generalizable result. This study provided a basis for further study into the HIV/AIDS management competence levels of health workers in RHC's in Chibombo District. Further studies would investigate what other factors affect the levels of competence observed, and what interventions can be put in place in order to improve on the level of competence of the health workers in HIV/AIDS care, in rural health facilities, and hence, the level of care provided.

The recommendations arising from the key informants of this study were as follows;

1. The Ministry of Health should reclassify some of the health centres from a health post or a rural health center to a Zonal health facilities, due to the very large catchment populations they service. This would lead to an improvement in the establishment. As a result the district health office would recruit a lot more health workers and that way ensure there was a mix of skills. These facilities would have important health workers like laboratory technicians, pharmacy dispensers, and psychosocial counsellors. Such facilities would act as mini-hospitals where HIV/AIDS clients and patients could be referred to from the RHC's and health posts instead of the patients having to travel large distances to the District hospital to obtain the level of care they require. These zonal facilities would also provide guidance and mentorship to the small health centres HIV/AIDS management.
2. Training institutions should be expanded to offer courses like midwifery training and clinical officers training. If training institutions expanded, they would enroll more students, then there would be more graduates, who could be sent to take up jobs at these Zonal health facilities.
3. More frequent in house training should be provided by the DHMT to improve on the skills of the HRH.
4. Improving on Rural health workers conditions i.e. rural electrification, accessible banks in the district, better road infrastructure, good schools for health workers children and more health workers in the rural areas having access to rural retention schemes.

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## 10.0 APPENDICES

### **APPENDIX I: HIV AIDS COMPETENCY QUESTIONNAIRE; ADAPTED WITH PERMISSION FROM ZAMFOHR HRHRAG**

The HIV/AIDS care competencies are listed below and are grouped into the following domains:

Domain #1 – Public Health, Prevention and Infection Control

Domain #2 – Occupational Health and Safety

Domain #3 – Research

Domain #4 – Care for HIV/AIDS Patients

Domain #5 – Palliative Care

Domain #6 – Education

Domain #7 – Administration and Support

For each of the competencies ask yourself, “Do I personally have the knowledge, skill and judgment to perform this competency?”

**Specifically, for each of the items listed below please check the number that most reflects your assessment of your own level of competence, where:**

**1 = “I am not competent to perform it”**

**2 = “I have performed it in the past, but I am not currently competent”**

**3 = “I am competent to perform it with supervision”**

**4 = “I am competent to perform it without supervision”**

**5 = “I am competent to perform it and could supervise others performing it”.**

The objective of this questionnaire is to estimate the prevalence of personal competence with each of the HIV/AIDS care competencies among health care providers in Chibombo.

Although a given health care profession may have legal authority to conduct many of the competencies listed below, not all members of that profession will currently have the personal competence to do so. For example, physicians as a profession are legally authorized to intubate patients, but not all individual physicians are competent to do so. In completing this questionnaire do not think about what your profession is legally authorized to do (scope of practice of the profession), or even what your employer permits you to do (scope of employment). Rather, think about what you personally are competent to do.

Please respond to all of the questions unless the skip instructions direct otherwise.

COMPETENCY ITEM	SELF-ASSESSED LEVEL OF COMPETENCE
<p><b>1 = “I am not competent to perform it”</b>  <b>2 = “I have performed it in the past, but I am not currently competent”</b>  <b>3 = “I am competent to perform it with supervision”</b>  <b>4 = “I am competent to perform it without supervision”</b>  <b>5 = “I am competent to perform it and could supervise others performing it”.</b></p>	
<b>DOMAIN # 1: PUBLIC HEALTH, PREVENTION AND INFECTION CONTROL</b>	
1. Plan and implement a surveillance program for HIV/AIDs in the district (coordinate data collection, summarize outbreak progression, submit report to care site officials and/or Public Health officials)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
2. Coordinate with district medical office to meet surveillance requirements	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
3. Advise on appropriate cleaning, disinfection and sterilization of medical equipment	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
4. Manage blood products safely	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
5. Ensure safe injection practices	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
6. Organize and conduct screening clinics in a community setting (e.g.: health centre)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
7. Create processes that ensure confidentiality.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN #2: OCCUPATIONAL HEALTH</b>	
8. Screen staff for illness	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
9. Identify staff who, due to illness or burnout, need assistance/rest	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
10. Report on staff who due to illness or burnout, need assistance/rest	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
11. Identify workplace hazards related to risks for HIV/AIDs transmission	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
12. Provide on-going education and training related to such hazards	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
13. Provide ongoing education and training related to HIV/AIDS risk factors (outside of work)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
14. Rectify workplace hazards including reporting	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
15. Systematically monitor absenteeism (by various causes)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
16. Administer antiretroviral medication to staff	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

COMPETENCY ITEM	SELF-ASSESSED LEVEL OF COMPETENCE
<p><b>1 = “I am not competent to perform it”</b>  <b>2 = “I have performed it in the past, but I am not currently competent”</b>  <b>3 = “I am competent to perform it with supervision”</b>  <b>4 = “I am competent to perform it without supervision”</b>  <b>5 = “I am competent to perform it and could supervise others performing it”.</b></p>	
17. Provide follow-up support and education to staff who have HIV/AIDs	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
18. Monitor and manage adverse events associated with antiretroviral treatment of staff	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
19. Provide psychosocial support for staff	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
20. Recognize the logistical support needs of staff (e.g., food, family support, family care)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN #3: RESEARCH</b>	
21. Plan and conduct epidemiological analysis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
22. Coordinate and train staff in data collection, conduct descriptive analyses, summarize outbreak progression, prepare reports	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
23. Use smart care or patient tracking system to generate operations research	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
24. Interpret research evidence in terms of its relevance to HIV/AIDS care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
25. Apply relevant research evidence in practice of HIV/AIDS care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
26. Disseminate research findings related to HIV/AIDS care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
27. Plan and conduct epidemiological analysis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
28. Coordinate and train staff in data collection, conduct descriptive analyses, summarize outbreak progression, prepare reports	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN # 4: CARE FOR HIV/AIDS PATIENTS</b>	
29. Manage patient flow within a care site (e.g. receive and direct patients seeking patient care)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
30. Take a screening history of the chief complaint and relevant aspects of the past medical history, current medications etc.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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31. Triage patients according to acuity of illness and need for care, and referring to appropriate care setting (primary and secondary assessment, hospital, emergency dept, non-traditional care site, community)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
32. Manage opportunistic infections (e.g.: tuberculosis)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
33. Prevent mother-child transmission by prescribing antiretrovirals in pregnancy	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
34. Prevent mother-child transmission by administering antiretrovirals in pregnancy	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
35. Perform appropriate hand hygiene and universal precautions	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
36. Don and remove appropriate personal protective equipment	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
37. Assess level of consciousness	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
38. Perform a physical examination	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
39. Order clinical diagnostic tests	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
40. Provide counselling related to testing	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
41. Perform clinical laboratory testing service (haematology, chemistry etc.)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
42. Provide diagnostic imaging services (x-ray, ultrasound, CT Scan, MRI)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
43. Interpret the results of history, physical exam, chest x-ray, and lab tests, leading to a diagnosis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
44. Screen for eligibility for antiretroviral treatment/prophylaxis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
45. Obtain consent for antiretroviral treatment/prophylaxis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
46. Dispense medication (includes available and accessible antiretroviral drug treatment)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
47. Provide medication counselling	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
48. Assess and provide care to patients during transportation	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
49. Perform basic life support techniques (Cardio Pulmonary Resuscitation)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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50. Provide assistance with activities of daily living to patients	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
51. Provide psychosocial support to patients and families	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
52. Provide pastoral/spiritual support/guidance to patients and families	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
53. Provide support to patients in their homes (e.g., nutritional support, medication, counselling for dependents, etc.)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
54. Measure temperature	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
55. Take pulse	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
56. Take blood pressure	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
57. Take venous blood samples	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
58. Obtain specimens for other cultures (e.g., urine, stool, wound)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
59. Measure oxygen saturation	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
60. Monitor and manage adverse events associated with treatment/prophylaxis	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
61. Admit a patient or discharge a patient to home or to another care setting	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
62. Order chest x-rays and CT scans	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
63. Start intravenous lines	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
64. Maintain intravenous lines (site and tubing)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
65. Set up oxygen	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
66. Check oxygen administration set-ups	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
67. Administer medication by inhalation	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
68. Administer medication by injection (subcutaneous, intramuscular)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
69. Administer medication orally	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
70. Administer medication by intravenous route	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
71. Administer medication by intravenous push	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
72. Suction patients who are not intubated or trached	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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73. Insert and maintain Foley catheters	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
74. Perform intubation	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
75. Set up ventilation (establishing ventilation parameters)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
76. Monitor ventilation	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
77. Administer medication by continuous infusion	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
78. Suction intubated/ventilated patients	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
79. Manage insulin infusions	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN #5: PALLIATIVE CARE</b>	
80. Decide on palliative care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
81. Provide medication and support for comfort	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
82. Provide pain management services	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
83. Provide family support and spiritual care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
84. Pronounce cessation of life	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
85. Sign death certificate	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN #6: EDUCATION</b>	
86. Educate health care providers (HCPs) about HIV/AIDs	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
87. Educate HCPs about Zambia’s HIV/AIDs guidelines for care and World Health Organisation standards and guidelines for HIV/AIDs care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
88. Educate HCPs about how to use assessment, triage & management protocols (for patients with and with-out co-morbidities)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
89. Educate HCPs about the ethical considerations in HIV/AIDs care	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
90. Educate HCPs about how to navigate Zambia’s health care system to support	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>



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patients with HIV/AIDs	
91. Educate HCPs about the respective roles of other HCPs in caring for patients with HIV/AIDS	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
92. Educate HCPs about legal issues related to care (i.e., medical consents and durable powers of attorney)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
93. Educate HCPs about individual preparedness (e.g. family support while working, care for ill family members, wills, etc.)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
94. Educate HCPs about Personal Protective Equipment (PPE) (i.e., what to wear, when, how)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
95. Educate HCPs about self-screening for HIV/AIDS or other illness (physical, psychological)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
96. Educate HCPs about advising HIV/AIDS patients to discontinue/continue working	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
97. Educate the public about HIV/AIDs in general and HIV/AIDs prevention in particular (e.g. through outreach programs)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>DOMAIN #7: ADMINISTRATION AND SUPPORT</b>	
<b>a. Competence in Managing a Care Setting (Public health, primary care, long-term care, acute care or intensive care):</b>	
98. Establish and manage a non-traditional care site (e.g. community centre set up as an HIV/AIDs facility)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
99. Assess staff competencies and match them to needs (including support staff, technical staff, volunteers and other staff not usually assigned to that care site)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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100.Schedule, deploy and redeploy staff	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
101.Carry out succession and contingency planning	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
102.Make decisions about the allocation of resources (human and non-human) based on an ethical framework	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
103.Manage command and control structures	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
104.Supply chain management	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
105.Manage the availability of beds	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
106.Manage pharmacy services (including pharmaceutical storage and availability and accessibility of antiretroviral medications)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
107.Manage clinical laboratory services (e.g.: availability of local rapid HIV testing)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
108.Manage diagnostic imaging services	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
109.Manage health records services (including knowledge of freedom of information policies and practices)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
110.Design and implement a security plan for the protection of staff, patients, supplies and information	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
111.Manage food services (for patients, families, staff)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
112.Manage laundry services (commercial and/or in-house)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
113.Manage housekeeping services	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
114.Manage waste disposal (including bio hazardous waste)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
115.Manage a care facility in terms of creation of isolation space, etc.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
116.Manage information infrastructure (telephones, email, hospital information system, surveillance infrastructure)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
117.Manage parking	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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118.Manage transportation of laboratory specimens	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
119.Manage transportation of bio hazardous waste	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
120.Manage transportation of controlled substances	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
121.Manage transportation of staff	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
122.Manage transportation of patients	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>b. Competence in Coordinating Patient Flow:</b>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
123.Answer questions about navigating the care delivery system	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
124.Direct patients to appropriate care sites	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
<b>c. Competence in Managing Communications:</b>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
125.Develop and implement internal communications plans (e.g., status of HIV/AIDs)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
126.Develop and implement external communications plans (e.g., with other levels of care, Public Health, community (including non-health care organizations))	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
127.Manage confidentiality (emails, telephone calls, face-to-face, documents)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
128.Provide general leadership to a care setting population (e.g., assuming the role of leader, directing and delegating, responding to group needs, problem solving and role modeling)	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

129 What is your profession?

	<b>Profession</b>	<b>(Tick)</b>
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A	Doctor	
B	Nurse	
C	Midwife	
D	Clinical Officer	
E	Environmental Technician	
F	Pharmacist	
G	Pharmacy Technician	
H	Nutritionist	
I	Other: (Specify) _____	

130 Gender: Male \_\_\_\_\_ Female \_\_\_\_\_

131 What is your age group? 15-19 \_\_\_\_\_ 20-29 \_\_\_\_\_ 30-39 \_\_\_\_\_ 40-49

\_\_\_\_\_

50-59 \_\_\_\_\_ 60+ \_\_\_\_\_

132 Number of years in service \_\_\_\_\_

Thank you for your time and responses.

## APPENDIX II: QUALITATIVE QUESTIONS

1. What is your name?

2. What position do you hold here?
3. How many years have you worked in this position?
4. Do you work with Health personnel in the rural health centers in Chibombo and in what capacity?
5. What would you say is the biggest health challenge in Chibombo?
6. What do you think is the major cause of this?
7. What is your opinion on the level of competency of health staff to manage HIV/AIDS patients in Chibombo? By competency I mean the level of skills and ability.
8. There are areas of competence that have been identified as necessary to provide adequate care for People living with HIV/AIDS (PLWHA). These areas are;
  - Public Health, Prevention and Infection Control
  - Occupational Health and Safety
  - Research
  - Care for HIV/AIDS Patients
  - Palliative Care
  - Education
  - Administration and Support

In your opinion, in which of these 7 main areas do you think the staff in Chibombo are the most competent in?

In which areas do you feel there is incompetence or more needs to be done?

9. What are some of the reasons in your opinion, that affect the level of competence the type of care that health cadres provide to patients in Chibombo?
10. Do you think that the number of staff at the rural centers affect the level of competence there to manage HIV/AIDS care? If so, what would be the ideal situation?
11. What challenges do you think health cadres in rural areas face?
12. What recommendations can you make with regards improving the level of competence to manage PLWHA at the Rural Health Centers?

**APPENDIX III: CHIBOMBO DISTRICT COMMUNITY HEAD OFFICE 3<sup>RD</sup> QUOTA STAFF RETURNS, 2013**

**CHIBOMBO DISTRICT COMMUNITY HEAD OFFICE 3RD QUOTA STAFF RETURNS - 2013**

HEALTH FACILITY	Doctor	Clinical Officer	Env Health Technician	Nurse	Midwives	Physio therapist	Pharmacist	Lab technologist	Radio grapher	Dentist	TOTAL
Malombe RHC			1	1	2						4
Chibombo RHC		1	1	1	1						4
Chikobo RHC			1	1	1						3
Twalumba RHC		1	1	1	1						4
Kayosha RHC		1	1	1	1						4
Golden Valley RHC				1	1						2
Muswishi RHC			1	1	1						3
Chikonkomene Health Post			1	3							4
Mamboshi Health Post			1	1	1						3
Mulungushi Agro RHC			1		1						2
Mwapula Health Post			1								1
Chisamba RHC		1	1		2			1			5
Naliyanda RHC				1	1						2
Shifwankula Health Post				1	1						2
Mboshia RHC			1	1							2
Mungule RHC			1	1	1						3
Chipembi RHC		1	1	3	1						6
Chipeso RHC			1	1	1						3
Keembe RHC		1	1	1							3
Malambanyama RHC		1	1	2							4
Kaparu RHC			1	2	1						4
Shimukuni RHC		1	1	1							3

HEALTH FACILITY	Doctor	Clinical Officer	Env Health Technician	Nurse	Midwives	Physio therapist	Pharmacist	Lab technologist	Radio grapher	Dentist	TOTAL
Mwachisompola RHC		1		1	1						3
Chamatembi HP					1						1
Muntamba RHC			1		2						3
Itumbwe RHC					1						1
Makoka HP		1									1
Mwanjuni HP			1	1	1						3
Chitanda RHC		1	1	1							3
Ipongo RHC		1	1	1							3
Chisamba ZNS		1	1	2							4
Namanyani HP				1							1
Liteta District Hospital	4	9	1	30	9	4	4	3	1	1	66
<b>TOTAL OF HEALTH WORKER TYPE</b>	<b>4</b>	<b>22</b>	<b>26</b>	<b>63</b>	<b>34</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>1</b>	

