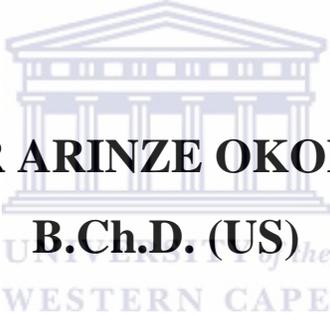


**KNOWLEDGE, ATTITUDE & PRACTICE OF NON-  
DENTAL HEALTH CARE PROVIDERS IN RELATION  
TO THE ORAL MANIFESTATIONS OF HIV/AIDS IN  
BUTHA-BUTHE DISTRICT, LESOTHO**



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A thesis submitted in partial fulfillment of the requirements for the degree of MSc  
(Dent) in Dental Public Health at the Faculty of Dentistry, University of the  
Western Cape

**Supervisor: Professor Sudeshni Naidoo, PhD**

## ABSTRACT

### **Knowledge, attitude and practice of non-dental health care providers in relation to the oral manifestations of HIV/AIDS in Butha-Buthe district, Lesotho.**

**BACKGROUND:** The scourge of HIV and AIDS on the people of Lesotho is a huge public health problem faced by the country's Ministry of Health and in 2005 the national adult HIV prevalence rate was 23% (WHO, 2009). It is estimated the one in every four adults in the country is HIV positive and in 2012, new HIV infection per year was estimated to be 18,000 (MoH Lesotho, 2014). The 2014 health reform by the Ministry of Health, Lesotho plans to capacitate village health workers (VHWs) to play an important role in addressing Lesotho's most urgent health crises which are: to reduce child mortality, to improve maternal health, to combat HIV/AIDS and other diseases. This is because VHWs and primary health care nurses (PHC nurses) are in vital positions to identify, manage or refer such patients for appropriate care. Studies have shown that between 74.4% - 90% of HIV infected people present with at least one oral lesions in the course of the disease. Health care workers need to have adequate knowledge of these conditions for effective management thereof.

**AIM:** To determine the knowledge, attitudes and practices of nurses and VHW in Butha-Buthe district with respect to oral HIV/AIDS manifestations.

**METHODOLOGY:** A descriptive cross-sectional survey was conducted on one hundred and forty-one Village health workers and nurses in Butha-Buthe district of Lesotho. A self-administered questionnaire was used to gather information on demographic characteristics of the participants and their knowledge, attitudes and practices regarding the management of oral lesions associated with HIV. Analysis was done using the SPSS statistical software package. Descriptive statistics such as frequency distributions and cross tabulations was generated and the results were summarized in tables and figures.

**RESULTS:** The ages of the participants ranged between 21 and over 50 years. There majority were female (83.7%). And two thirds had a secondary school education. The healthcare providers that had ten years or less of service accounted for 59.6% of the respondents and 0.7% had more than 30 years of service. Most of the respondents (97.9%) had previous knowledge on oral lesions related to HIV/AIDS but only (8.2 %) reported having received knowledge through training institutions. The majority (79.3%) identified oral candidiasis (OC) as the most common lesion found in people living with HIV/AIDS while lesions of NOMA, aphthous ulceration, Kaposi's sarcoma and herpes zoster were the least identified lesions by the respondents. The findings showed that 67.4% of the participants washed their hands routinely with water only whereas 66.7% routinely washed their hands with antiseptics. However, a majority of them (96.5%) said that they washed their hands with water and soap routinely.

**CONCLUSION:** There are however gaps in the knowledge, attitude and practices of nurses and VHWs in Butha-Buthe district to oral HIV/AIDS manifestations. Improvement in the knowledge and ability of these cadre of health care providers to recognize and manage such lesions can be done through an introduction of such training in their school curriculum. It may also be necessary to continuously have seminars aimed at training and retraining these cadre of health workers on this topic. It is also worrisome that a high number of the participants indicated they didn't strictly adhere to standard precautions as stipulated by WHO. It may be necessary to conduct studies to assess reasons for their infection control practices.

# DECLARATION

I, Arinze Okolo (Student No. 3314778), the undersigned, hereby declare that this dissertation is my own original work except where indicated in acknowledgements and references. It is being submitted in partial fulfillment for the degree (MSc) in Community Dentistry at the Faculty of Dentistry, University of the Western Cape. It has not been previously submitted in part or its entirety towards any other degree or examination at any other university.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## DEDICATION

*I would like to dedicate this work to:*

*My beloved parents, who supported me throughout my life and have always been there for me. Your prayers for me were what sustained me thus far.*

*My brothers and sister, for their constant support, help and love.*



## ACKNOWLEDGEMENTS

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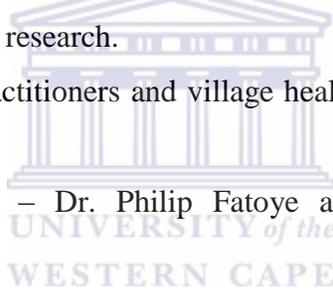
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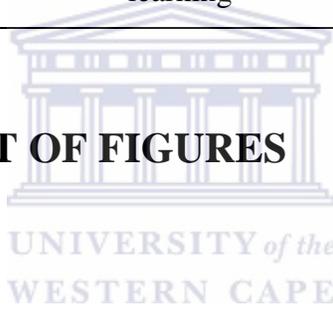
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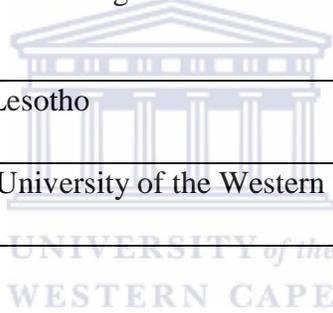
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## ACRONYMS AND ABBREVIATIONS

**AIDS** – Acquired Immune Deficiency Syndrome

**HAART**- Highly Active Anti-Retroviral Therapy

**HIV**- Human Immunodeficiency Virus

**HPV**- Human papilloma virus

**KAP**- Knowledge Attitudes and Practices

**KS**- Kaposi's sarcoma

**NHL**- non-Hodgkin lymphoma

**OHL**- Oral Hairy Leukoplakia

**PHC**- Primary Health Care

**TB**- Tuberculosis

**VHW**- Village Health Worker

**WHO**- World Health Organization



# Chapter 1: Introduction

The scourge of HIV and AIDS on the people of Lesotho is a huge public health problem faced by the country's Ministry of Health and in 2005 the national adult HIV prevalence rate was 23% (WHO, 2009). It is estimated that one in every four adults in the country is HIV positive and in 2012, new HIV infection per year was estimated to be 18,000 (MoH Lesotho, 2014). The burden of HIV/AIDS is further complicated by the increasing incidence of Tuberculosis (TB). The rate of new TB infections in Lesotho is the fourth highest in the world (MoH Lesotho, 2014). The incidence of TB in the country has increased by more than 10% in the last two decades and the TB-HIV co-infection rate is estimated to be 77% (MoH Lesotho, 2014). The emergence of multi-drug resistant TB (MDR-TB) has further compounded the strain on the existing health infrastructure. The country is said to be making "slow progress" on millennium development goal (MDG) 6: the fight against HIV/AIDS, malaria and other diseases due to a variety of reasons (MoH Lesotho, 2014). Major challenges in the fight against HIV/AIDS include a scarcity of healthcare workers and a weakened health system (WHO, 2009). In 2012 Lesotho had 58% ART coverage for HIV positive pregnant women and 54% ART coverage for eligible adults and children. HIV testing for pregnant women for the same year was put at 48% and mother to child transmission was 10% in 2011 (MoH Lesotho, 2014). Lesotho is a resource poor country and the challenge of HIV/AIDS and its related diseases has put enormous pressure on the economy of the country. The country spends 12.8% of its GDP on health making it the third highest health expenditure in Africa (MoH Lesotho, 2014). This in 2014 led to the development of a new health reform by the Ministry of Health structured to deliver appropriate return on health investment and combat the various diseases mitigating the lives of the Basotho people.

## 1.2 PROBLEM STATEMENT

Early identification and initiation of treatments for patients infected with HIV is an important tool in the fight against the disease. The oral cavity can be a useful tool in this identification process because studies have shown that between 74.4% - 90% of HIV infected people present with at least one oral lesions in the course of the disease (Muslim & Naidoo, 2013; Campo *et al.* 2012; Gnanasundaram, 2010).

These lesions can present as early clinical features of the disease in undiagnosed patients and they can be used to monitor the progression of the HIV infection. These oral lesions can also be seen in treatment defaulters and their appearance in patients on HAART can be a sign of treatment failure. In the dental facility in Butha-Buthe government hospital Lesotho, between the months of January and March 2014, twenty one people having not known their HIV statuses, presented with such oral lesions and they all tested positive to HIV. For the month of April 2014 in the same dental facility, out of the 11 patients identified with oral lesions 6 were positive after their tests, 3 were identified as defaulters, 1 was a known HIV positive patient not enrolled on ART and 1 person tested negative. This underlines the importance of the oral cavity and oral health in general in the fight against HIV/AIDS. The serious lack of human resources for healthcare has been a major problem for the government of Lesotho. A large number of healthcare providers are being lost to South Africa and other countries (WHO, 2009). This dearth of healthcare providers has necessitated the urgent training of other healthcare providers to attend to the needed services. The 2014 health reform by the Ministry of Health, Lesotho plans to capacitate village health workers (VHWs) to play an important role in addressing Lesotho's most urgent health crises which are: to reduce child mortality, to improve maternal health, to combat HIV/AIDS and other diseases. This is because VHWs and primary health care nurses (PHC nurses) are in vital positions to identify, manage or refer such patients for appropriate care.

VHWs provide the most basic primary health care (PHC) services at the community or village level and therefore are the first line of health care providers in the districts. They are charged with making initial assessments of patients and referrals to health centers when necessary. Other responsibilities include the rehabilitation of the disabled in the community, maintenance of a village register and growth monitoring. A Nurse Clinician is in charge of the health center and is expected to have been trained in all aspects of public health services. Health centers are the main formal health facilities of the services that fall within the scope of PHC (MOHSW, 2004). It is anticipated that the VHWs will be trained in relevant areas to equip them with knowledge useful in the detection of new cases, increase clinic attendance and treatment adherence as well as utilization of hospital services for patients in need (MoH Lesotho, 2014). Part of their training will be on the identification of common oral lesions seen in HIV/AIDS.

## Chapter 2: Literature Review

### 2.1 INTRODUCTION

The mouth has been described by some health professionals as a mirror into the state of health of a patient's body because it can present with signs that may alert a clinician to an underlying systemic condition. For instance, conditions like diabetes, sexually transmitted infections, anaemia and Sjögren's syndrome all present with oral lesions which may be the first noticeable clinical sign of disease. Various studies have shown that human immunodeficiency virus (HIV) infection also presents with oral lesions (Muslim & Naidoo, 2013; Eweka *et al.* 2012; Agbelusi & Wright, 2005; Coogan *et al.* 2005). This link between oral health and systemic infection has elicited a call for all health care providers to improve their knowledge of oral health. The WHO oral health programme has emphasized the need for oral examination of all patients as a tool to reduce common health problems including HIV disease (Petersen, 2006). The oral screening being advocated is neither an expensive nor technical procedure. It is an easy non-surgical procedure that involves a quick extra oral and intra oral evaluation using tongue depressors, mouth mirrors, gauze and a good illumination done at very minimal cost (Gennaro *et al.* 2008).

### 2.2 IMPORTANCE OF ORAL LESIONS IN HIV INFECTED PATIENTS

Examination of the oral cavity is useful in monitoring the progression of HIV infection through the appearance of certain oral lesions (Campo *et al.* 2012; Coogan *et al.* 2005) and studies have shown that these oral lesions are more common in men than women (Khongkuntian *et al.* 2001). Studies have also shown that 74.4% - 90% of HIV patients present with an oral lesion in the course of the disease (Muslim & Naidoo, 2013; Campo *et al.* 2012; Gnanasundaram, 2010). Other studies however showed a prevalence of 36.8%-38% of oral lesions in HIV positive patients (Eweka *et al.* 2012; Khongkuntian *et al.* 2001). It can be concluded from these various studies that these lesions are very common in HIV infected patients and can be useful tools in identification of such patients.

HIV/AIDS-associated oral lesions are usually visible and their clinical diagnosis is easy to make (Coogan *et al.* 2005). They are often early clinical signs of the infection (Muslim & Naidoo, 2013; Eweka *et al.* 2012; Agbelusi & Wright, 2005; Coogan *et al.* 2005) and can inform a diagnosis of HIV infection in situations where the patient is ignorant of his or her HIV status (Coogan *et al.* 2005). It is important to diagnose HIV patients at an early stage so that they can be monitored and their treatment can start early. The early management of such patients can mean improved prognosis for the condition and lead to a better quality of life for such patients (Muslim & Naidoo, 2013).

In addition, the presence of oral lesions can give an indication of how immunodeficient the patient is and hence such lesions are used for staging HIV disease (Gnanasundaram, 2010). Aside from being used for diagnostic purposes and staging of the HIV condition, these lesions can also be used to monitor recovery or detect treatment failure. The advent of highly active antiretroviral therapy (HAART) has greatly reduced the morbidity and mortality related to HIV/AIDS and the recurrence of oral lesions in a known HIV positive patient may be due to non-compliance with therapy, anti-retroviral therapy resistance/failure or progression to AIDS (Coogan *et al.* 2005). It has been reported that a reduction in oral lesions following HAART is seen only with candidiasis, hairy leukoplakia and HIV-related periodontal infections and has not affected the prevalence of other oral lesions associated with HIV/AIDS (Coogan *et al.* 2005). HAART has also been associated with an increase in the prevalence of Human papilloma virus (HPV) infections and salivary gland disease (Coogan *et al.* 2005).

### **2.3 EFFECTS OF ORAL LESIONS ON THE GENERAL HEALTH OF THE PATIENT**

The mouth is the gateway into the body and the importance of good nutrition for an HIV positive patient can not be overemphasized. Awareness of HIV-associated oral manifestations is very important because some lesions alter the facial appearance, impair speech, cause pain and discomfort and may consequently affect a patient's nutrition (Muslim & Naidoo, 2013; Eweka *et al.* 2012; Coogan *et al.* 2005). Nutrition and HIV are important determinants of the prognosis of HIV.

Oral lesions can also lead to weight loss, can be visually unappealing and affect the patient's psychology and quality of life (Coogan *et al.* 2005) on account of individuals limiting the type of food they eat (Gennaro *et al.* 2008). Oropharyngeal candidiasis is especially associated with difficulty in swallowing and may result in rapid deterioration of the general health of a patient (Coogan *et al.* 2005). Xerostomia which is common among HIV patients may also contribute to the high DMFT seen in these patients. In addition, xerostomia also affects the perception of taste and lead to reduced oral health quality of life in these patients (Coogan *et al.* 2005). Cancrum oris, a sequela of necrotizing ulcerative gingivitis, an easily identifiable lesion associated with HIV infection (Coogan *et al.* 2005), is a totally debilitating lesion which leads to loss of facial bones and soft tissues and impacts adversely on the health of HIV positive individuals. Improved nutrition is of utmost importance especially in HIV positive children and pregnant mothers because of their increased nutritional needs (Gennaro *et al.* 2008).

## 2.4 ORAL LESIONS SEEN IN HIV/AIDS

It is important to note that the appearance of these oral lesions in a patient does not mean a diagnosis of HIV/AIDS, rather they raise the suspicion of immunosuppression and in a population afflicted by HIV disease they can inform a diagnosis of HIV.

Oral HIV lesions can be grouped into diseases of the salivary gland, periodontal diseases, lesions of uncertain origin, neoplastic conditions, fungal, bacterial and viral infections. The European Economic Community-Clearinghouse (EEC-Clearinghouse) on oral problems related to HIV-infection and WHO collaborating center on oral manifestations of the human immunodeficiency virus in 1991 categorized these lesions into three distinct groups and in 1993 revised their classification. The revised 1993 classification which is still widely used worldwide today as stated by Kuteyi & Okwundu (2012) are:

*Oral lesions strongly associated with HIV infection.* This category of oral lesions include: oral candidiasis, oral hairy leukoplakia, linear gingival erythema, acute necrotizing ulcerative gingivitis, acute necrotizing ulcerative periodontitis, kaposi sarcoma (KS) and non-Hodgkin lymphoma (NHL).

*Oral lesions less commonly associated with HIV infection.* This group of oral lesions include: acute necrotizing stomatitis, mycobacterium tuberculosis, ulceration not otherwise specified (NOS), herpes simplex virus, herpes zoster virus, and others.

*Oral lesions seen in HIV infection.* This category of oral lesions include: recurrent aphthous ulcer (RAS), cytomegalovirus ulcer, histoplasma capsulatum, cat scratch disease, molluscum contagiosum, and others.

## **2.5 OVERVIEW OF MAJOR ORAL LESIONS**

An overview of the commonly seen oral lesions of HIV/AIDS in adults and children is described briefly below.



### **2.5.1 ORAL CANDIDIASIS**

This is a fungal infection caused by *Candida albicans*, a normal commensal of the oral cavity that can proliferate in an event of immunodeficiency and present as an oral pathological condition (Gnanasundaram, 2010). Oral candidiasis is the most commonly seen oral lesion in HIV in both paediatric and adult patients and is seen in up to 43-50% of patients (Eweka *et al.* 2012; Gennaro *et al.* 2008; Agbelusi & Wright, 2005).

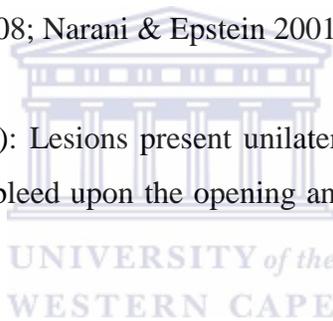
Oral candidiasis presents in four clinical forms and all four may occur concomitantly in the oral cavity: Acute Pseudomembranous type (oral thrush), Acute atrophic type (erythematous candidiasis), Chronic hyperplastic type (candida leukoplakia) and Chronic atrophic type (angular cheilitis) (Gnanasundaram, 2010; Gennaro *et al.* 2008). According to Coogan & Challacombe (2011) oral candidiasis may no longer be useful as an indicator of disease progression in this era of HAART and in EEC-Clearhouse revised classification of 1993, hyperplastic candidiasis is no longer included as a lesion strongly associated with HIV/AIDS.

Acute Pseudomembranous (oral thrush): This is one of the commonest lesions seen in HIV infection (Coogan *et al.* 2005) and can present anywhere within the oral mucosa. It presents as thick, white removable plaques above an erythematous mucosa. Lesions are asymptomatic, can be easily wiped off to reveal a mucosa which readily bleeds (Gennaro *et al.* 2008).

Chronic hyperplastic (candida leukoplakia): This form of candidiasis is more deep rooted and presents as thick white non-removable plaques on the oral mucosa (Gennaro *et al.* 2008; Narani & Epstein 2001).

Acute atrophic (erythematous candidiasis): Presents as red macules, sometimes mixed with white spots, commonly seen on the dorsum of the tongue and on the palate accompanied by depapillation. The lesion may not be easily distinguishable from benign migratory glossitis and angular cheilitis (Gennaro *et al.* 2008; Narani & Epstein 2001).

Chronic atrophic (angular cheilitis): Lesions present unilaterally or bilaterally as cracks on the commissures of the lips that may bleed upon the opening and closing of the lip (Gennaro *et al.* 2008; Narani & Epstein 2001).



Oral candidiasis can be treated systematically or topically all dependent on the patient's preference. Topical management will involve the patient to accommodate the medication in the mouth for twenty to thirty minutes while systemic treatments involve the use of antifungal agents like fluconazole and itraconazole (Gennaro *et al.* 2008). The use of Nystatin suspension in both children and adult HIV patients is not recommended (Coogan *et al.* 2005).

## **2.5.2 LINEAR GINGIVAL ERYTHEMA**

This condition presents as an erythema of the free gingiva, attached gingiva and alveolar mucosa. The two distinct features of this condition are: linear erythematous band involving the free gingiva and diffuse erythema of the attached gingiva. There is usually spontaneous bleeding from the area of the free gingiva, and the oral hygiene of such patients are usually relatively

plaque free. The condition is usually refractory to conventional treatments (Narani & Epstein 2001).

### **2.5.3 NECROTIZING ULCERATIVE GINGIVITIS (NUG)**

The condition presents as inflammation and oedema of the gingiva with punched out dirty ulcers and areas of tissue destruction around the interdental papillae and it can take a chronic or subacute course. An important feature of HIVNUG is how fast it progresses to necrotizing periodontitis. The condition can easily progress to ulcerative periodontitis, which is known to be extremely rapid in progression with destruction of the mucosa, skin and osseous tissues (Narani & Epstein 2001).

### **2.5.4 NECROTIZING ULCERATIVE PERIODONTITIS**

This condition manifests as a rapid destruction of the periodontal attachment and bone with soft tissue necrosis and foetor oris. Some changes are noticeable early in this condition in relation to the gingiva and these are: interproximal necrosis, ulceration and cratering. It is also associated with severe, deep seated pain of the jaw bone and spontaneous bleeding of the area involved (Narani & Epstein 2001).

### **2.5.5 ORAL HAIRY LEUKOPLAKIA (OHL)**

OHL presents as non-removable white, corrugated lesions on the lateral borders of the tongue. It is caused by the Epstein Barr virus which is a sign of immunodeficiency and so an appearance of oral hairy leukoplakia in the mouth cannot be regarded as indicative of exclusively HIV infection. Its appearance in the oral cavity can also be a sign of treatment failure in a patient already on HAART. It is usually asymptomatic, does not require treatment and does not respond to antifungal agents (Gennaro *et al.* 2008; Narani & Epstein 2001).

### **2.5.6 KAPOSI'S SARCOMA (KS)**

This is the commonest oral malignancy observed in patients with HIV and it is caused by KS-associated herpes virus or human herpes virus type 8. It is commonly seen on the palate, gingiva and dorsum of the tongue and presents as reddish, bluish or purplish lesions.

Gingival Kaposi's sarcoma is usually seen on the labial and buccal gingiva and occur in about a quarter of HIV positive adults. It is usually associated with difficulty in swallowing, pain and poor aesthetics. Treatment involves the use of chemotherapy or surgery and is dependent on number, size and location of the lesion (Gennaro *et al.* 2008; Narani & Epstein 2001).

Oral hairy leukoplakia and Kaposi's sarcoma are strongly associated with HIV infection in adults but in children, herpetic lesions and parotid gland enlargement are more common (Gennaro *et al.* 2008).

### **2.5.7 HERPETIC LESIONS**

Lesions are caused by Herpes simplex virus type 1 and are commonly seen on HIV positive paediatric patients. They are chronic, recurrent and appear inside the mouth on the dorsum of the tongue and the palate- the keratinized mucosa and also on the lips as vesiculobullous lesions that can rupture and cause painful ulcers. They may be confused with Aphthous ulcers which can be minor, major or herpiform in appearance with a whitish base, erythematous border and seen on non keratinized oral mucosa (Gennaro *et al.* 2008). Treatment with acyclovir may assist if provided early.

### **2.5.8 PAROTID ENLARGEMENT**

Enlargement of the parotid glands has long been identified as a distinct presentation of HIV in paediatric patients. It presents as a unilateral or bilateral diffuse swelling of the parotid gland with no pain or inflammation but occasionally associated with xerostomia. They can also be a manifestation of HIV in adult patients and usually require symptomatic treatment (Gennaro *et al.* 2008).

## **2.6 THE KNOWLEDGE, ATTITUDE & PRACTICE OF NURSES AND CARE GIVERS IN RELATION TO THE ORAL HEALTH.**

There are very few documented studies on knowledge, attitude and practices on oral manifestation of HIV/AIDS of nurses and other primary health care providers especially in Africa. Documented studies around the world however report on the poor knowledge of oral health, lack of assessment and poor reporting of oral health related cases by nurses (Frenkel *et al.* 2002; Adams,1996), and this maybe responsible for the under reporting of oral conditions associated with HIV/AIDS in resource poor nations (Coogan *et al.* 2005).

A study carried out in South Africa revealed gaps of knowledge among nurses on issues relating to HIV/AIDS (Delobelle *et al.* 2009). The poor knowledge and skill in relation to oral health exhibited by nurses may be as a result of the very little training on oral health in the nurse's curricula (Frenkel *et al.* 2002) - an assertion supported by Muslim & Naidoo (2013) in a study done on nurses in a district in South Africa which showed that 90% of the respondents received "little or no undergraduate or post graduate training in the examination, diagnosis and treatment of oral lesions". Nurses in maternal and child health have always incorporated the oral cavity in their examination of newborns, on the look out for congenital anomalies which are fairly prevalent world wide. They however do not continue this practice after the initial newborn period. It is important that nurses involve an assesment of the oral health and carry out necessary interventions which may simply be referral of such patients to health care providers, in their general management of a patient because of the important association between oral health and HIV/AIDS (Gennaro *et al.* 2008).

It is also important that nurses and village health care workers's knowledge of oral health is improved because they are often the first line of health providers to come in contact with patients (Munoz *et al.* 2009) especially in most healthcare facilities in resource poor countries be it a primary health care centre or tertiary facility and the majority of patients they see are functionally dependent with significant oral health care needs.

With the primary health care approach which has been adopted by many African countries, patients are being encouraged to seek treatment for minor health problems in primary health care facilities which are mostly manged by nurses and village health workers. Improved knowledge on oral health for a nurse/health care provider will also help in early identification of lesions,

early referrals, early care, reduced morbidity and mortality as a result of the HIV disease and an improved quality of life for the patient (Coogan *et al.* 2005; Munoz *et al.* 2009). The Lesotho Ministry of health in recognition of the role VHWs have to play in the fight against the spread of HIV and TB at the grassroots level decided on a new VHW strategy which is based on a proven model of patient and client accompaniment by VHWs focused on HIV & TB (MoH Lesotho, 2014). The strategy of accompaniment is aimed at increasing clinic attendance and improved treatment adherence. These VHWs are also expected to provide directly observed therapy (DOT), attend clinic appointments with patients, and otherwise stand shoulder-to-shoulder with patients, in solidarity and support (MoH Lesotho, 2014). These VHWs have three to ten patients assigned to them depending on the catchment area, incidence and geography of the area. The HIV patients under their care include both ART and pre-ART patients. Their responsibilities also includes active house to house case finding of HIV and TB suspects and accompany them to health facilities for testing. They are also expected to trace HIV (pre-ART and ART) and TB patients who have been lost to follow-up as well as to provide psychosocial support and home-based care to HIV and TB patients (MoH Lesotho, 2014). In addition they are to educate the village about important health issues such as HIV, TB, maternal mortality, and healthy practices within the community. Finally they are expected to report health hazards and the death of any patient to the health center within 48 hours. These VHWs will have to be trained with the objectives of their training aimed at the responsibilities they have been saddled with. Training of new VHWs is conducted by the VHW Coordinator, the Nurse-In-Charge and other health workers (MoH Lesotho, 2014). An oral health care provider will be responsible for the training of these cadre of health workers on oral HIV/AIDS manifestation as such it is pertinent that he understands the existing knowledge, attitude and the practices as well as their determinants in these health workers so that their training will be tailored to their specific needs.

Knowledge, attitude and practice (KAP) surveys can be used as a scholastic analysis of a community by measuring their health related behaviours and their influences (Kaliyaperumal, 2004 & Gumucio *et al.* 2011). KAP surveys help researchers understand people's knowledge about certain things, their feeling and behaviours as this will enable a more effective process of awareness creation and interventions will be tailored to specific local circumstances and factors that influence them (Kaliyaperumal, 2004 & Gumucio *et al.* 2011). This survey method provides qualitative and quantitative information through the use of predefined questions structured in

standardized questionnaires (Launiala, 2009). Information gathered from KAP surveys are used in public health programmes planning. The desirability of this type of survey stems from the fact that it incorporates an easy design, data gathered are quantifiable and the results are easily interpreted and presented (Launiala, 2009). Also, small sample results can be generalised to a wider population and enumerators can easily be trained (Launiala, 2009 & Gumucio *et al.* 2011). KAP surveys are however not without their shortfalls. Knowledge related to health systems are rarely investigated in KAP surveys because in most cases the definition of knowledge adopted is based on scientific facts and universal truths (Launiala, 2009 & Gumucio *et al.* 2011). Measuring attitude has also been criticized because respondents have a tendency to give answers which they believe are correct, acceptable and appreciated. Answers may also be influenced by the survey interview context because respondents will give deferring answers in situations where other people are present or not and in situations where the interview is conducted in a clinic or village setting (Launiala, 2009 & Gumucio *et al.* 2011). Occasionally the attitude measured may not reflect the respondents answers because respondents will give answers based on their understanding of the questions (Launiala, 2009 & Gumucio *et al.* 2011). It is therefore advised that researchers should be careful with the interpretation of results related to attitude measurement. KAP surveys have also been criticized for providing only descriptive data which do not provide information on why and when some health related practices are adopted. It is also of concern that data gathered through KAP surveys can be used for program planning based on the erroneous assumption that there is a direct relationship between knowledge and behaviour (Launiala, 2009). In conclusion, KAP surveys contain several weaknesses and some of these weaknesses can be overcome by planning carefully, pre-testing questionnaires and training research assistants. It has also been documented as a poor method for obtaining sensitive issues like sexual behaviours, traditional treatment modalities and prevention practices (Launiala, 2009). It is however useful in situations where the plan is to obtain information on public health knowledge regarding treatment and prevention practices (Launiala, 2009).

### **Chapter 3: Aims and Objectives**

## **AIM OF THE STUDY**

To determine the knowledge, attitudes and practices of nurses and VHW in Butha-Buthe district with respect to oral HIV/AIDS manifestations.

## **OBJECTIVES**

The objectives were to determine the:

- I. knowledge of nurses & VHW on oral manifestations of HIV/AIDS.
- II. attitudes of nurses & VHW towards diagnosing and treating patients with oral lesions associated with HIV/AIDS.
- III. the practices of nurses & VHW towards recognition and response to oral manifestations of HIV/AIDS.



## **Chapter 4: Methodology**

#### **4.1 Introduction**

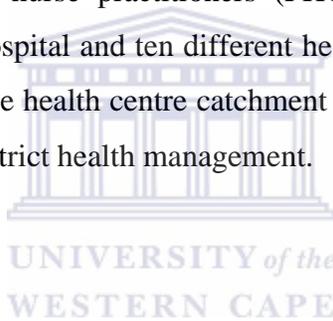
This chapter describes the approach used in the design of this study and the techniques for data collection and analysis. The study population and the sampling technique are also described and explained under the methodology section.

#### **4.2 Study design**

This study was a descriptive, cross sectional study

#### **4.3 Study site and study population**

This study was carried out using a convenience sample of non-dental health care providers which consisted of primary health care nurse practitioners (PHCNPs) and village health workers (VHWs) working in the general hospital and ten different health centres in Butha-Buthe district. The lists of VHWs working in these health centre catchment areas were obtained from the office of the public health nurse in the district health management.



#### **4.4 Study sample**

Data was collected from all the nurses that consented to the study in the district hospital. An average of 10 VHWs were selected randomly from each of the 10 health centres by asking them to pick folded papers from a basket with only those that picked the ten papers with number ten on them allowed to take part in the study. The number of VHWs varied from site to site, the lowest number was 4 from one health centre and the highest number was 14 from one health centre.

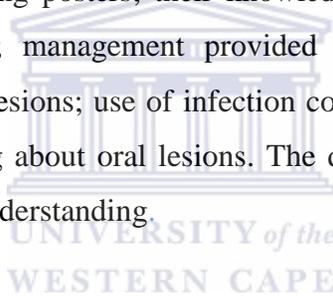
#### **4.5 Data collection tool**

Self-administered structured questionnaires were used to collect the data after participants had consented to be part of the study and signed the informed consent form (Appendix 1). The questionnaires were designed to ensure that it suited the aims and objectives of the study, were

clear, simple, unambiguous, minimized potential errors from the researcher and coder and enabled efficient, meaningful analysis of the acquired data.

The questionnaires which were in English and Sesotho (Appendices 2& 3) were completed on the site of the training exercise and collected immediately after the training. There was no incentives for choosing to participate in the study and participants were explained to that no identifying information e.g. name, will be collected and that there was also no penalty for non-participation.

The first part (Section A) was on demographic characteristics and it was used to get information on gender, age, residence, educational status, category of service provider and the number of years of practice. The second part (Section B) was on assessment of KAP of the participants and it comprised of questions relating to knowledge of the participants on the following aspects: their ability to identify oral lesions using posters; their knowledge on oral HIV lesions; source of knowledge on oral HIV lesions; management provided to HIV-infected patients; referral preferences; management of oral lesions; use of infection control measures; and suggestions on how to facilitate effective learning about oral lesions. The questionnaires were in Sesotho and English in order to ensure better understanding.



#### **4.6 Pilot study**

A pilot study of the questionnaire was done in January 2015 to determine the appropriateness and clarity of the questions and it involved 5 VHWs and 10 nurses. The questionnaire was not modified thereafter.

The pilot study was carried out to:

- (i) test the suitability of the method of collecting the data
- (ii) test how long each examination took to complete
- (iii) check the adequacy of the data capture sheet
- (iv) check that all the parameter measurements were clear and unambiguous
- (v) ensure that no major item had been omitted and
- (vi) remove any items that did not yield usable data.

#### **4.7 Data collection**

The principal researcher and one dental assistant participated in the data collection process using posters and structured questionnaires in English & Sesotho.

#### **4.8 Data analysis**

The data was entered into statistical software using codes developed with the assistance of a statistician. Analysis was done using the SPSS statistical software package. Descriptive statistics such as frequency distributions and cross tabulations was generated and the results were summarized in tables and figures.

#### **4.9 Ethical considerations**

The study protocol was presented to the ethics committees of both the University of Western Cape and Lesotho Ministry of Health for approval. Approval was granted (Appendices 4 and 5). Informed consent was sought from all study participants after explaining the aim and the purpose of the study. Confidentiality was ensured for all study participants by not having their names on data collection sheets. There was no incentives for choosing to participate in the study and there was also no penalty for non-participation.

## **Chapter 5: Results**

### **5.1 Demography**

One hundred and forty-one VHWs and nurses participated in the study aged between 21 and over 50 years old. There majority were female (83.7%). Two thirds had a secondary school education

and 27% of them had tertiary education. More than half of the respondents (65%) were VHWs. The healthcare providers that had ten years or less of service accounted for 59.6% of the respondents and 0.7% had more than 30 years of service. The demographic characteristics of the study population are presented in Table 1.

**Table 1: Demographic Details**

	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<b>GENDER</b>		
Male	23	16.3
Female	118	83.7
<b>AGE (years)</b>		
21-30	19	13.5
31-40	38	27.0
41-50	51	36.2
>50	33	23.4
<b>EDUCATIONAL LEVEL</b>		
Secondary	93	66.0
High school	10	7.1
Tertiary	38	27
<b>SERVICE PROVIDER</b>		
Nurse Clinician	7	5.0
Registered Nurse	40	28.4
Village Health Worker	91	64.5
Other	3	2.1
<b>NO. YEARS IN SERVICE</b>		
1-10	84	59.6
11-20	38	27.0
21-30	18	12.8
31-40	1	0.7

## **5.2 Importance of healthy teeth**

About a quarter of the respondents (25.5%) feel that teeth are important for good physical appearance. Good oral hygiene was also believed to be important for speech, good self-confidence and important for feeding. The responses are presented in Table 2.

**Table 2: Importance of healthy teeth**

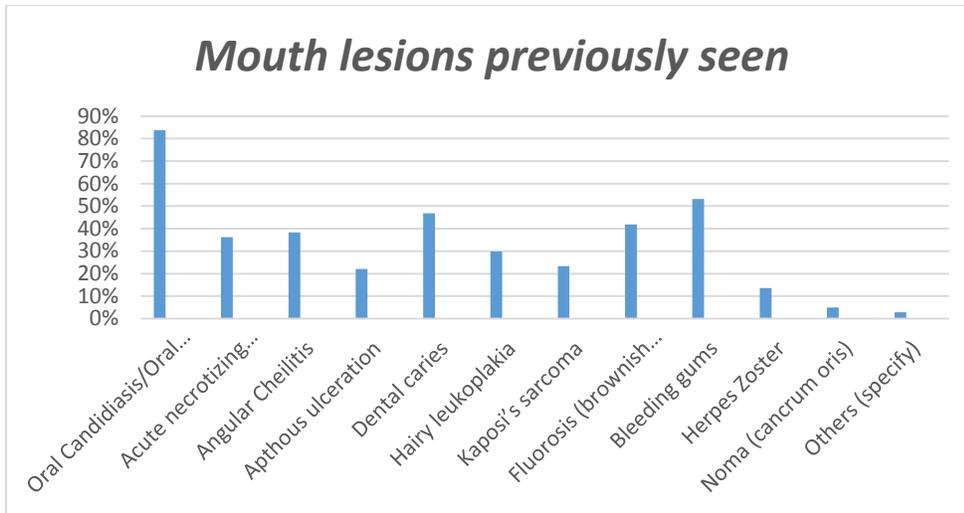
<b>Importance of healthy teeth</b>	<b>Response</b>	
	<b>n</b>	<b>Percentage</b>
Enable you to eat well	114	27.0%
Improved appearance	108	25.5%
Enable you to defend yourself	29	6.9%
Promote self confidence	87	20.6%
Enable you to speak well	81	19.1%
Any other (specify)	4	.9%
<b>TOTAL</b>	<b>423</b>	<b>100.0%</b>

### **5.3 Knowledge of oral lesions of HIV/AIDS**

Most of the respondents (97.9%) had some knowledge on oral lesions related to HIV/AIDS. Only 3 of the 141 respondents indicated not having a prior knowledge on oral lesions related to HIV/AIDS.

### **5.4 Oral lesions previously seen**

Lesions of oral candidiasis had been seen previously by 83.7% of the respondents while NOMA and herpes zoster had previously been seen by 5% and 13.5% of the respondents respectively. The results are presented in Figure 1.



**Figure 1: Mouth lesions previously seen**

### 5.5 Oral Lesions related to HIV/AIDS

Table 3 shows how the respondents associated certain oral lesions with HIV/AIDS. Lesions of oral candidiasis were identified by majority (79.3%) of the respondents as related to HIV/AIDS. Aphthous ulcerations and lesions of Kaposi's sarcoma were not strongly linked by the respondents to HIV/AIDS.

### 5.6 Source of Knowledge

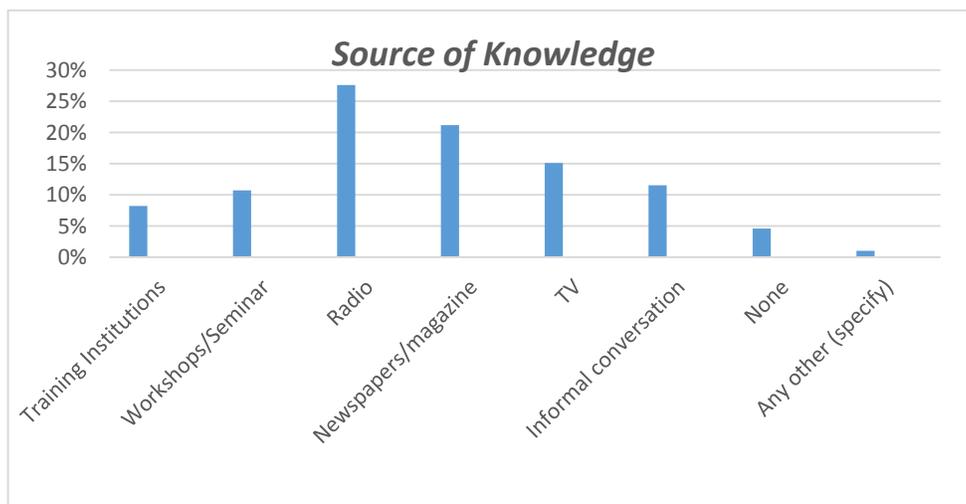
The radio accounted for the source of knowledge on HIV/AIDS for just over a quarter (27.6%) while 8.2% of the respondents got their information on HIV/AIDS from training institutions (Figure 2).

### 5.7 Past management of HIV patients

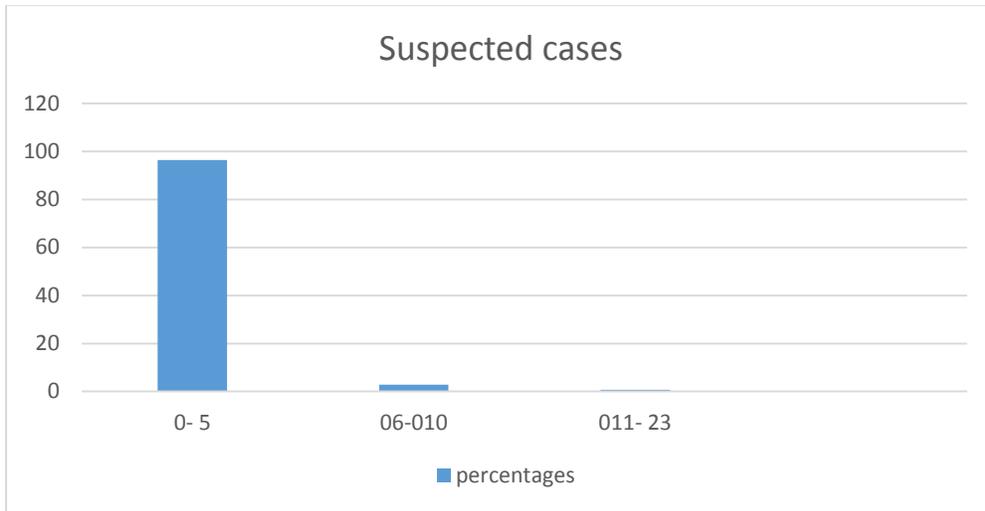
All of the respondents (99.3%) except one had previously treated patients that are HIV positive. Ninety seven percent saw between 0-10 suspected HIV patients with oral lesions of HIV/AIDS in the past month and only 4 (2.8%) treated 12-23 suspected HIV patients with oral lesions of HIV/AIDS in the past month.

**Table 3: Percentage of respondents who recognized association of oral lesions and HIV/AIDS**

<b>Oral Lesions related to HIV/AIDS</b>	<b>N</b>	<b>Percent of Respondents</b>
Oral Candidiasis/Oral thrush	111	79.3%
Acute necrotizing ulcerative gingivitis (ANUG)	45	32.1%
Angular Cheilitis	62	44.3%
Aphthous ulceration	29	20.7%
Dental caries	42	30.0%
Hairy leukoplakia	53	37.9%
Kaposi's sarcoma	33	23.6%
Fluorosis (brownish teeth)	57	40.7%
Bleeding gums	61	43.6%
Herpes Zoster	36	25.7%
Noma (cancrum oris)	12	8.6%
Others (specify)	6	4.3%



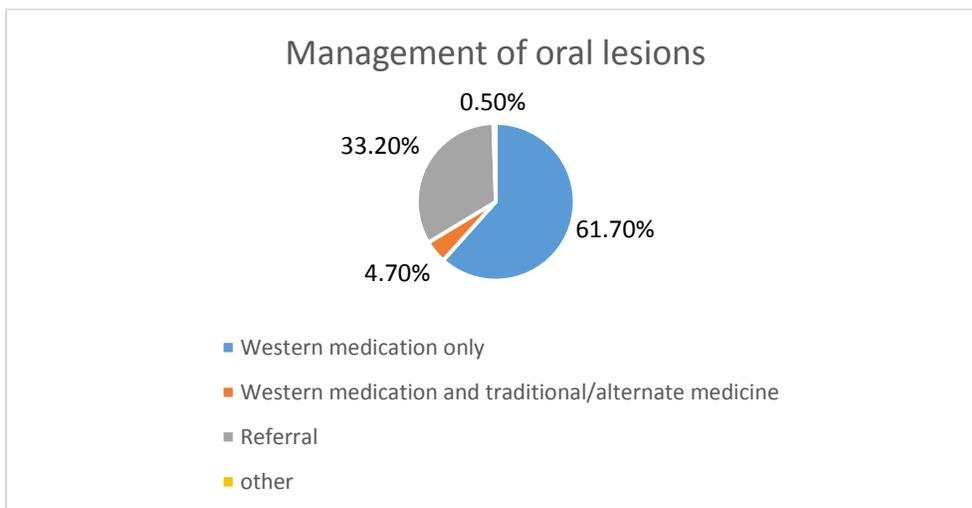
**Figure 2: Source of Knowledge about HIV**



**Figure 3: Number of suspected cases of HIV/AIDS seen in the past 1 month**

### 5.8 Treatment and management of oral lesions

More than half of the respondents (61.7%) said that they would use western medication only when managing oral lesions and 4.7% stated that they would use both western and traditional medications. This is presented in Figure 4.



**Figure 4: Management of oral lesions**

### 5.9 Treatment provided

Majority of the respondents (78.6%) reported that they would give their patients something to apply and 53.6% said they prefer to treat the oral lesions by giving something to wash with.

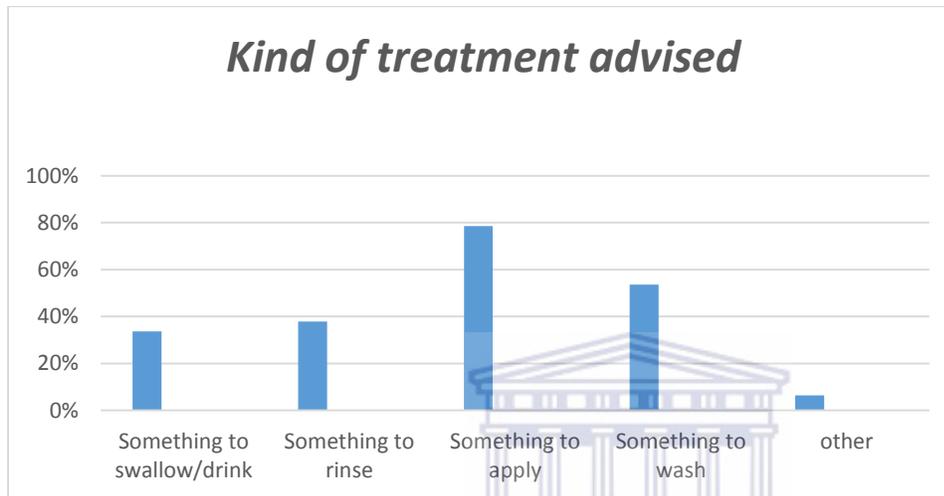
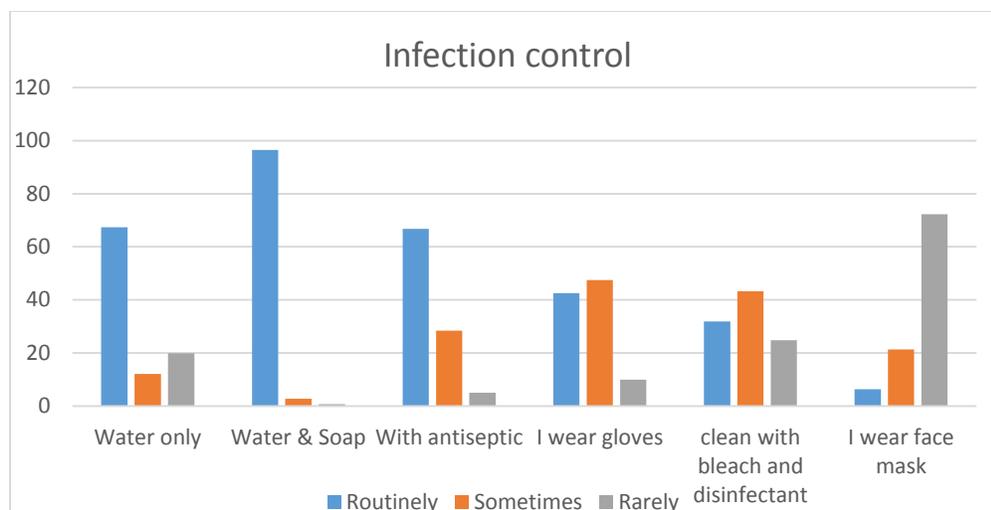


Figure 5: Kind of treatment advised

### 5.10 Infection control procedures

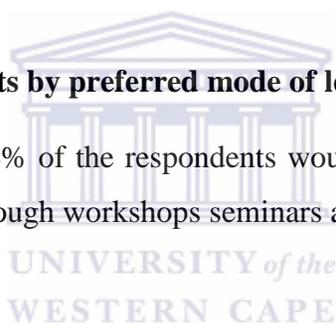
Figure 6 shows that 67.4% respondents routinely washed their hands only with water and 31.9% of respondents routinely cleaned their instruments with bleach and disinfectants.



**Figure 6: infection control**

### 5.11 Distribution of respondents by preferred mode of learning

Table 4 below highlights that 82.4% of the respondents would like to receive more training on the management of oral lesions through workshops seminars and training in schools



**Table 4: Distribution of respondents by preferred mode of learning**

Preferred mode of learning	Frequency	Percent
Multimedia	24	16.9
Workshop, seminars and trainings	117	82.4
<b>Total</b>	<b>141</b>	<b>99.3</b>

## **Chapter 6: Discussion**

Understanding knowledge, attitudes and practices of nurses and VHWs is vital in order to determine gaps in knowledge and the effectiveness of these health care providers in the prevention and early detection of HIV/AIDS in Lesotho. In this chapter the discussion is on the significance of the findings in chapter 4. Comparisons were done with similar studies carried out locally and internationally and highlights are placed on the potential implications of the findings for future research and practice.

### **Demographic characteristics**

A total of one hundred and forty-one VHWs and nurses participated in the study. There were 91 VHWs from the catchment areas of each of the ten different health centers in the district. Out of the 57 nurses in the hospital at the time of this study, 47 of them participated in the study. The other nurses that didn't participate in the study were either on leave or refused to sign the consent forms. The nurse clinicians were seven and the other 40 of them were registered nurses. The other 3 participants in this study were nurse assistants in the hospital.

Majority (83%) of the participants in this study were females. Of the 91 VHWs that participated in the study, 77 of them were females and 14 were males. Similarly, out of the 47 nurses that participated in this study, 38 were females and 9 were males. Majority of VHWs and nurses in Lesotho are females hence this is not unexpected.

In table1, it is seen that most of the respondents (36.2%) were within the age bracket of 41-50 years followed by the age category 31-40 with 27%. The youngest and oldest age categories of 21-30 and over 50years had 13.5% and 23.4% respectively. The implication of this age distribution could be that there is a loss of older and more experienced health care providers and poor recruitment of younger health care providers as replacement. This is echoed by the recent pronouncement by the Ministry of Health that they have 700 nursing vacancies of retired nurses to be filled. It is also possible that health care providers in these age categories are being lost to other countries. It may be necessary to carry out more studies to determine the reason for this peculiar age distribution.

More than half (59.6%) of the respondents had between 1-10 years of experience and only 1 person (0.7%) had 31-40 years of experience. Respondents with 11-20 and 21-30 years of experience made up 27% and 12.8% respectively. This indicates that most of the respondents had little experience. This is also expected because a lot of VHWs were recently employed and trained in the past year. However, this is also possibly an indication that experienced nurses are being lost to other countries. Retention packages and other measures need to be developed to ensure that experienced health care providers are not lost in Lesotho because the country already suffers from a dearth of health care providers.

More than half (73.1%) of the respondents had at least high school education. This shows that education qualification was considered in the recent recruitment process for VHWs. High school qualification is also the minimum requirement for an admission to study nursing in any institution in Lesotho. This is important because if the country's plan is to equip VHWs with basic knowledge on health issues as a means of tackling the nation's most pressing health needs then these VHWs require at least a high school qualification if they are to be effective.

### **Importance of healthy teeth**

All the respondents agreed that good oral health is essential for the total well-being of an individual. This may be an indication of the positive attitude of the respondents to oral health. Their reasons for agreeing that good oral health is important for the overall well-being of a person include the importance of the mouth in: eating, maintenance of good appearance, improvement of self-confidence and making speeches.

### **Mouth lesions previously seen**

Lesions of oral candidiasis were the commonest lesion seen by most (83.7%) of the respondents while bleeding gums and dental caries had been seen by 53.2% and 46.8% of the respondents respectively. Lesions of NOMA and Herpes Zoster were the least identified lesions by the respondents having been identified by 5% and 13.5% respectively. Acute ulcerative gingivitis had been seen by 36.2% of the respondents and Hairy leukoplakia had been seen by 29.8% of the respondents previously.

Angular Cheilitis had also been seen by 38.3% and Aphthous ulceration by 22% of the respondents while Kaposi's sarcoma and fluorosis had been seen by 23.4% and 41.8% respectively. For oral candidiasis to be identified by majority of the respondents may be an indication of its prevalence in relation to HIV/ AIDS. This is in agreement with regional and international studies done on HIV/AIDS that identify oral candidiasis as the commonest oral lesion of HIV/AIDS (Muslim & Naidoo, 2013; Eweka *et al.* 2012; Gennaro *et al.* 2008; Agbelusi & Wright, 2005). This also agrees with a local study done by Kamiru & Naidoo in 2002 which identified oral candidiasis as the commonest lesion seen in HIV-positive patients attending the Queen Elizabeth II Hospital, Maseru, Lesotho. Another regional study done on community health workers in Kenya showed most of the respondents to be highly knowledgeable about the signs and symptoms of oral candidiasis (Koyio *et al.* 2014). On the other hand, lesions of aphthous ulceration, Kaposi's sarcoma, hairy leukoplakia, angular cheilitis, ANUG and NOMA were identified by very few of the respondents. This is possibly because of the high number of inexperienced respondents that took part in this study. It is also an indication that more training on the recognition of oral lesion related to HIV/AIDS are necessary as non-dental health care providers may not be knowledgeable on other intra oral lesions aside from candidiasis. As a means to address this problem, the oral health program of the Lesotho ministry of health has been running an on-field training program for VHWs on the recognition of oral lesions related to HIV/AIDS.

### **Oral Lesions related to HIV/AIDS**

In the same vein, lesions of oral candidiasis were correctly identified by 79.3% of the respondents as related to HIV/AIDS while angular cheilitis was identified by 44.3%, ANUG was identified by 32.1% and hairy leukoplakia was identified by 37.9% of the respondents as related to HIV/AIDS. Lesions of NOMA, aphthous ulceration, Kaposi's sarcoma and herpes zoster were the least identified lesions by the respondents having been identified by 8.6%, 20.7%, 23.6% and 25.7% of the respondents respectively. Interestingly, their knowledge of oral candidiasis as a clinical sign of HIV/AIDS was lower than their ability to correctly identify oral candidiasis.

This was the same finding in a regional study carried out on community health workers in Kenya which found that more of the respondents were able to identify lesions of oral candidiasis but

fewer were able to associate it with HIV/AIDS. The same study also found that very few of the respondents was able to correctly identify herpes zoster lesion in the facial region (Koyio *et al.* 2014).

Of concern was that a high number of respondents associated bleeding gums (43.6%), fluorosis (40.7%), and dental caries (30%) to HIV/AIDS. This may be because rampant caries as a result of the combined effect of xerostomia and the use of sweetened therapeutic medications is a common observation among HIV positive patients in Lesotho and HIV related gingival diseases like necrotizing ulcerative periodontitis and necrotizing ulcerative gingivitis are associated with bleeding gums. However, non-dental health care providers will require adequate training on recognition of the gum bleeding as a result of HIV infection. Another area of concern was the little association by the respondents to HIV/AIDS of lesions like ANUG, hairy leukoplakia, and Kaposi's sarcoma which are all strongly related to HIV/AIDS. It is important for health workers to correctly identify lesions of Kaposi's sarcoma because it is indicative of disease progression and it is associated with high mortality in Africa (Chu *et al.* 2010). This reinforces my position that further training need to be done on this topic to help non-dental health care providers identify the common intra oral lesions related to HIV/AIDS. A regional study done in Nairobi, Kenya showed that training community health workers on HIV/AIDS related oral lesions significantly increased their knowledge, recognition and management of these lesions (Koyio *et al.* 2014). This is a position supported by the oral health program of the Lesotho ministry of health which has intensified efforts to train VHWs in every district on this topic.

### **Sources of Knowledge**

Despite the fact that all the respondents claim to have previously heard about oral HIV/AIDS lesions, only (8.2 %) reported having received knowledge through training institutions. Mass media was one of the major sources of information with 21.2%, 27.6% and 15.1% of the respondents claiming they got information on oral HIV/AIDS lesions through newspapers/magazines, radio and television respectively. 10.7% of the respondents also claimed to have received information on the matter through seminars and workshops.

The oral health program through its daily community oral health education, its weekly radio presentations, annual oral health awareness week, and distribution of posters and pamphlets on oral health issues has undoubtedly contributed to the spread of oral health information through the mass media. Also in recent times, the oral health program once every year visits all the training institution for nurses in Lesotho to educate them on oral health issues. Measures need to be taken to include education on oral health issues in the nurses' curriculum. Further studies are needed to explore which forms of media are more cost effective to inform and educate the public, health care providers in general and primary health care practitioners in particular.

### **Treatment and management of oral lesions**

All of the respondents (99.3%) except one had previously treated patients that are HIV positive in their practice. This clearly shows that HIV is a disease commonly encountered by health care practitioners in Lesotho and stresses the need for these frontline health care providers to be equipped with knowledge that will aid effective recognition and management of the condition.

Ninety seven percent of the respondents claimed to have seen 0-10 suspected HIV patients with oral lesions of HIV/AIDS in the past one month and only 4 (2.8%) of the respondents claim to have managed 12-23 suspected HIV patients with oral lesions of HIV/AIDS in the past one month. The difference in the number of patients seen over the period of one month may be due to several factors. Firstly, some of the health centres serve larger catchment areas than others so health workers in these catchment areas may be exposed to more patients than others. Secondly, it is highly possible that some of these health workers do not consider the oral cavity in their general examination of patients and they miss out on some of these oral lesions. Thirdly, the ability to identify some of these oral lesions differ among health care providers and some health care providers assume every white lesion in the mouth is a sign of HIV/AIDS infection. For instance, aspirin burn is a common cause of white lesion in the mouth (Bhattacharyya *et al.* 2003) and experience has shown that some health workers refer patients with aspirin burns to the hospital under the erroneous assumption that they are early stages of candidiasis.

Fourthly, a lot of health care providers associate all intra oral ulcers with HIV/AIDS and this may be a reason for the high number of oral HIV/AIDS lesions seen by some of them. Intra oral lesions of HIV/AIDS are atypical ulcerations (ulcerations not otherwise specified) and their diagnosis is arrived at by exclusion of all other causes of intra oral ulcers available in the dental literature (Reichart, 1997).

The number of unnecessary referrals can be reduced through adequate training of primary health care providers. Primary health care practitioners need to be encouraged on the need for proper intra oral examination/ screening of all patients as a means of identifying underlying systemic conditions. Training materials on proper intra oral examination and dental history taking can also be introduced at the health center level to aid health care practitioners in the execution of their duties.

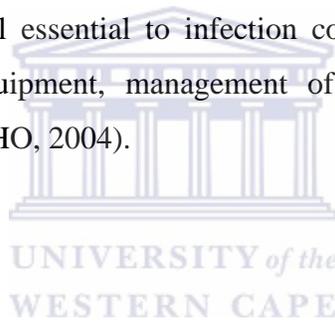
All the respondents expressed lack of trust or confidence in the practice of traditional health practitioners (THP) and would not refer a patient with lesions related to HIV/AIDS to them for management. They cited reasons like THP not having the understanding to deal with HIV and such intra oral ailments. There has been an increased health education on HIV/AIDS and more members of the public know about HIV and where to get help on matters related to HIV.

### **Personal use of infection control**

The findings showed that 67.4% of the participants washed their hands routinely with water only whereas 66.7% routinely washed their hands with antiseptics. However, a majority of them (96.5%) said that they washed their hands with water and soap routinely. Sixty respondents (42.6%) wore gloves during examination whereas routine use of facemasks and proper instrument cleaning with bleach and disinfectants were limited to only 6.4% and 31.9% respectively.

The WHO's practical guidelines for infection control state that standard precautions should be observed in the treatment of every patient and these standard precautions should among many other things involve: hand washing and antiseptics (hand hygiene), use of personal protective equipment when handling blood, body substances, excretions and secretions (WHO, 2004). It is of grave concern that the use of precautionary barrier tools like glove and face masks are not used routinely by most of the respondents.

Another concern is the fact that only 6.4% of the respondents wash their instruments routinely with bleach and disinfectants. This could be as a result of the non-availability of infection control materials or inadequate knowledge on infection control. In a study done on health care workers in Nigeria, it was found that there was “poor adherence to universal precautions which was attributed to lack of knowledge and availability of materials in 48% and 60% of the workers respectively” (Aisien & Shobowale, 2006). It is not surprising that majority of the respondents routinely wash their hands with water and soap because the study was carried out around the period Ebola virus disease was ravaging some parts of the African sub-continent. This period was followed by a lot of campaign on proper hand washing with disinfectants and the use of hand sanitizers. It may be necessary to introduce a continuous infection control program which entails: training on basic measures of infection control (standard and additional precautions), education and training of health care workers, identification of hazards and minimization of risks, training on routine practical essential to infection control like aseptic methods, proper handling of instruments and equipment, management of body fluid exposure and sound management of hospital waste (WHO, 2004).



## **Chapter 7: Conclusion and Recommendations**

Awareness of HIV-associated oral manifestations is very important because some of these lesions alter the facial appearance, impair speech, cause pain and discomfort and may consequently affect a patient's nutrition. Nutrition and HIV are important determinants of the prognosis of HIV. Oral lesions can also lead to weight loss, can be visually unappealing and affect the patient's psychology and quality of life on account of individuals limiting the type of food they eat.

All the participants had a good understanding of the importance of a good oral health to the well-being of an individual. There are however gaps in the knowledge, attitude and practices of nurses and VHWs in Butha-Buthe district to oral HIV/AIDS manifestations. Improvement in the knowledge and ability of this cadre of health care providers to recognize and manage such lesions can be done through an introduction of such training in their school curriculum. This is especially important because these health care providers play an important role in the early identification and management of HIV cases.

Oral candidiasis was the commonest lesion identified by the participants as related to HIV/AIDS which is in agreement with finding from other regional and international studies. Few of the participants were unable to associate common oral lesions with HIV/AIDS, and this could be an indication of inadequate knowledge and skill in the identification of these lesions. Some of these lesions are important indicators of disease progression and their early identification is important in the identifying cases of treatment failure. It may be necessary to have on-going seminars and workshops aimed at training and retraining health workers on this topic. While there has been a decline in the prevalence of oral lesions in western countries with the introduction of HAART, oral lesions are still commonly seen in Lesotho despite HAART. A high number of the participants indicated they were not strictly adhering to standard precautions as stipulated by the World Health Organization and while there may be several reasons for this, it may be useful to conduct studies to determine clear reasons for this tardiness.

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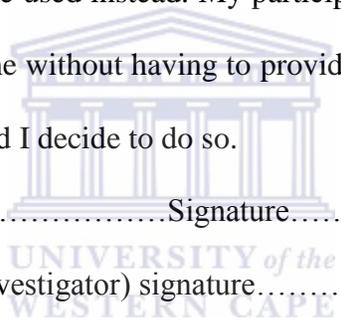
**Appendix 1: Certificate of consent**

I have received both verbal and written information about the research study that Dr. A.O. Okolo and his co-workers will conduct to determine the knowledge, attitude of the Primary health care nurse practitioners (PHCNPs) and Village health workers (VHWs) in the management of Oral HIV lesions in Butha-Buthe district in Lesotho. I have been informed that I will be interviewed through questionnaire to collect the necessary data.

I hereby give Dr. A.O. Okolo and his co-workers permission to enroll me in this study. I have been told that all identities of participants will be kept confidential. My name will not be recorded and a code number will be used instead. My participation is voluntary and I am free to withdraw from the study at any time without having to provide reasons for the withdrawal. I will not be prejudiced in any way should I decide to do so.

Name.....Signature.....

Date.....Clinician (Investigator) signature.....



**Appendix 2: Questionnaire on Knowledge – Attitude – Practice (in English)**

**Section A: Please could you supply some details about yourself?**

1) Serial No.: (Coded): .....

- Male
- Female

2) Age            21 – 30   
                     31 – 40   
                     41 – 50   
                     + 50

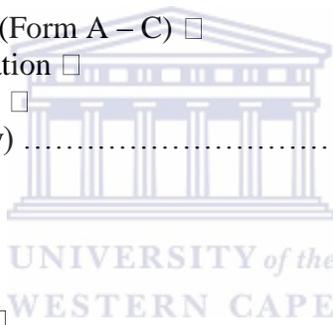
3) District/HSA .....

4) Educational Status:

- Secondary school (Form A – C)
- High school education
- Tertiary education
- Any other (specify) .....

5) Category of service provider:

- Nurse clinician
- Registered nurse
- VHW
- Any other .....



6) I have been in practice for .....years.

**Section B: Knowledge - Attitude - Practice**

1) Is good oral / mouth health important to the well-being of a person?

- Yes  No  Not sure  Don't know

2) Which of the following emphasize the importance of healthy teeth and supporting structures?

- (You can tick more than one answer)
- Enable you to eat well
- Enable you to defend (by biting)
- Improve appearance
- Promote self-confidence
- Enable you to speak well

Any other .....

3) Which of the following Mouth lesions have you seen in your clinic/village? Show posters.

(You can tick more than one answer)

- Oral candidiasis / Oral thrush
- Acute necrotizing ulcerative gingivitis (ANUG)
- Angular Cheilitis
- Apthous ulceration
- Dental caries
- Hairy leukoplakia
- Kaposi sarcoma
- Fluorosis (brownish teeth)
- Bleeding gums
- Herpes Zoster
- Noma (cancrum oris)
- Others (specify) .....

4) Do you have knowledge on Oral/Mouth HIV lesions?

Yes  No

5) If yes, which of the following Oral/Mouth lesions would you associate with the manifestations of HIV& AIDS? Show posters (You can tick more than one)

- Oral candidiasis/Oral thrush
- Acute necrotizing ulcerative gingivitis (ANUG)
- Angular cheilitis
- Apthous ulceration
- Dental caries
- Hairy leukoplakia
- Fluorosis (brownish teeth)
- Kaposi sarcoma
- Bleeding gums
- Herpes Zoster
- Noma (cancrum oris)
- Others (specify) .....

6) What is your source of knowledge on oral HIV/AIDS lesions? (You can tick more than one)

- Training institutions
- Workshops/ Seminars
- Radio
- Newspaper/ magazines
- TV

Informal conversations   
 None   
 Any other (specify) .....  
 Which source do you prefer most? .....

7) Have you ever treated/ seen a HIV positive patient?

Yes  No  Not sure

8) How many HIV positive/ AIDS patient(s) with above mentioned oral/ mouth lesions have you treated/ seen within the past 1 month?

Total number of general patients seen .....  
 Number of suspected HIV patients seen .....  
 Number of confirmed HIV patients seen .....

9) Are there some mouth lesions for which you would advise your patient to visit Traditional health practitioners (THPs)?

Yes  Why? .....  
 No  Why? .....

10) How do you treat/ manage oral lesions at your work place (You can tick more than one)?

Western medication only   
 Western medication and traditional/alternate medicine   
 Referral   
 Any other (specify) .....

11) What kind of treatment do you follow? (You can tick more than one)

Something to swallow/ drink   
 Something to rinse   
 Something to apply   
 Something to wash   
 Any other (specify) .....

12) Which of the following applies to your personal use of infection control procedures?

	<b>Routinely</b>	<b>Sometimes</b>	<b>Rarely</b>
I wash my hands with water only			
I wash my hands with water and soap			
I wash my hands with antiseptics			
I wear gloves			
I clean my instruments with bleach & disinfectants			

I wear facemask			
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Any other (specify) .....

13) Would you like to learn how to manage oral/ mouth lesions at your workplace?

Yes  No

14) If yes, any recommendations/ suggestions to facilitate that?

.....  
.....



### Appendix 3: Questionnaire on Knowledge – Attitude – Practice among (in Sesotho)

#### Section A: Khaolo ea Pele:

1) Nomoro (Serial No.): (Coded): .....

Motona   
Botsehali

2) Lilemo:                   21 - 30   
                                  31 - 40   
                                  41 - 50   
                                  + 50

3) Setereke/ Motse: .....

4) Boemo ba thuto:

Sekolo se mahareng (Form A – C)   
Sehlopha sa form (D-E)   
Sekolo se phahameng (Tertiary)   
E ngoe: .....

5) Karolo ea mosebetsi oa hau:

Mooki   
Mothusi oa mooki   
Ba sebelletsi ba tsa bophelo motseng   
E ngoe: .....

6) Ke na le lilemo tse .....ka tšebetso.

#### Section B: Karolo ea Bobeli

1) Na tlhokomelo e ntle ea lehano e bohlokoa ka kakaretso bakeng sa bophelo bo bottle ba motho?

E  Che  Mohlomong  Ha ke tsebe

2) Ke efa ea tse latelang e hlalolang ka botebo bohleka ba thlhokomelo e ntle ea lehano?  
(You can tick more than one answer)

Ho ja lijo hantle   
Ho itsireletsa (by biting)   
Ho ntlafatsa chebahalo   
Ho ntlafatsa seriti sa hau

Ho etsa hore o bue hantle

E ngoe: .....

3) Ke bofe bokuli ba lehano boo o eng bobone bakuling ba hau? Fana ka lebitso la Sesotho.  
(You can tick more than one answer)

Oral candidiasis / Oral thrush

Acute necrotizing ulcerative gingivitis

Angular Cheilitis

Apthous ulceration

Dental caries

Hairy leukoplakia

Kaposi sarcoma

Fluorosis (brownish teeth)

Bleeding gums

Herpes Zoster



Noma (cancrum oris)   
Mafu a mang (Hlalosa): .....

4) Na o na le tsebo ka mafu a lehamo?

E  Che

5) Lethathamong le latelang, ke afe mafu a lehamo ao e leng matšoao a HIV&AIDS?  
(You can tick more than one)

Oral candidiasis / Oral thrush   
Acute necrotizing ulcerative gingivitis   
Angular Cheilitis   
Apthous ulceration   
Dental caries   
Hairy leukoplakia   
Kaposi sarcoma   
Fluorosis (brownish teeth)   
Bleeding gums   
Herpes Zoster   
Noma (cancrum oris)   
Mafu a mang (Hlalosa): .....

6) Mohlohi oa litsebo tsa hau ka mafu lehamo a tsamaellanang le HIV&AIDS ke afe  
(You can tick more than one)

Makaleng a boikoetliso   
Likolong tsa moetlo   
Lithupelong   
Seea- le moea   
Likoranta   
Setšoantšo   
Moqokong   
Ha e eo   
Tse ling (Hlalosa) .....  
Ke mokhoa ofe oa ho fumana litaba oo o ratang? .....

7) Ka tsebo ea hao, o kile oa thusa/ ho bona motho ea nang le kokoana hlooko ea HIV?

E  Che  Mohlomong

8) Ka tsebo ea hao ke bakuli ba ba kae ba nang le tšoastso le mafu a lehamo a boletsoeng bao o ba thusitseng/ boning khoeling e fetileng?

Palo ea bakuli ka kakaretso: .....  
Palo ea ba belaeloang ka HIV: .....  
Palo ea netefalitseng batsoeroeng: .....

9) na ho na mafu a lehana ao o ka khotohaletsang moamani le ueana kappa moratuo oa hao ho bana ngaka ea moetlo kappa mooki?

E  Hobaneng? .....  
Che  Hobaneng? .....

10) U alafa/ ho beha taolong mafu a lehana mosebetsing oa hao ka tsela efe?

Merian<sup>aa</sup> sekhoaa/ sesotho/ litlama   
Lingaka tsa moetlo feela   
Phapanyetsano ea bakuli   
E ngoe (Hlalosa) .....

11) O sebelisa mofuta ofe oa kalafo ho e latelang? (You can tick more than one)

Ho koenya/ ho noa ho hong   
Ho sebelisa ho hong bakeng sa ho khakhatsa   
Ho sebelisa ho hong ho hlatsoa lehana   
Ho sebelisa ho tlotsang   
Ho hong: .....

12) Molemong oa tšireletso ea hao ke ofe mokhoa oo o sebelisang?

Khafetsa Ka nako Engoe Ka seoelo  
Ke hlapa matsoho ka metsi feela     
Ke hlapa matsoho ka sesepa     
Ke hlapa matsoho ka lithibela kokana hlooko     
Ke hlatsoe lisebelisoa tsa ka ka lithibela  
Likokoana hloko     
Ke roala liatlana     
Ke roala litšireletsa sefahleho

13) Na u ka rata ho ithuta ho alafa mafu a lehana?

E  Che

14) Ke eng eo o e hlokang ea lithupelo/ lisebeliso bakeng sa ho ntlafatsa itsebo/ katamelolo/ litšibeletso tsa hao kalafong ea mafu a lehana?

.....  
.....

## Appendix 4: Ethical approval, Lesotho



Ministry of Health  
PO Box 514  
Maseru 100

29 December 2014

**Dr Arinze Ogugua Okolo**  
Butha-Buthe Hospital/ MOH  
Postgraduate student  
University of the Western Cape

Dear Dr. Arinze,

**Re: The Knowledge, attitude & practice of non-dental health care providers in relation to the oral manifestations of HIV/AIDS in Butha-Buthe District, Lesotho (ID133-2014)**

Thank you for resubmitting the above mentioned proposal. The Ministry of Health, Research and Ethics Committee having reviewed your modified protocol hereby authorizes you to conduct this study among the specified population. The study is authorized with the understanding that the protocol will be followed as stated. Departure from the stipulated protocol will constitute a breach of the permission.

We are looking forward to have a progress report and final report at the end of your study.

Sincerely,

**Dr. Limpho Maile**  
Director General Health Services

**Dr. Amelia Ranotsi**  
Chairperson  
National Health Institutional  
Review Board

## Appendix 5: Ethical approval, University of the Western Cape



**Office of the Deputy Dean  
Postgraduate Studies and Research**  
Faculty of Dentistry & WHO Collaborating Centre for Oral Health



UNIVERSITY OF THE WESTERN CAPE  
Private Bag XI, Tygerberg 7505  
Cape Town  
SOUTH AFRICA

Date: 29<sup>th</sup> August 2014

**For Attention: Dr A Okolo**  
Department of Community Dentistry  
Faculty of Dentistry

Dear Dr Okolo

**STUDY PROJECT:** Knowledge, attitude & practices of oral manifestations of HIV/AIDS of non-dental health care providers (nurses and village health workers) in Butha-Buthe District, Lesotho

**PROJECT REGISTRATION NUMBER:** 14/7/17

**ETHICS:** Approved

At a meeting of the Senate Research Committee held on Friday 29<sup>th</sup> August 2014 the above-mentioned project was approved. This project is therefore now registered and you can proceed with the study. Please quote the above-mentioned project title and registration number in all further correspondence. Please carefully read the Standards and Guidance for Researchers below before carrying out your study.

Patients participating in a research project at the Tygerberg and Mitchells Plain Oral Health Centres will not be treated free of charge as the Provincial Administration of the Western Cape does not support research financially.

Due to the heavy workload auxiliary staff of the Oral Health Centres cannot offer assistance with research projects.

Yours sincerely

Professor Sudeshni Naidoo

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Tel -27-21-937 3148 (w); Fax -27-21-931 2287 e-mail: suenaidoo@uwc.ac.za