Primary care practitioners' knowledge, attitudes and current practice in managing oral health conditions.

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DECLARATION PAGE

DECLARATION

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Background and Literature Review

Good oral health is an essential and integral part of good general health, although the area of oral health is often neglected or perceived to be solely in the realm of dentists. The World Health Organisation defines good oral health as "a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing." [1] The distribution, prevalence, and impact of oral disease in South Africa, and the world, suggest that it is a field where primary care doctors and nurses have the potential to play a significant role in the prevention and management of oral and dental conditions.

Poor oral health reflects social inequalities: with limited accessibility and availability of oral health services, socio-economic status, education and dietary intake all contributing to the oral disease burden. In under-resourced areas, patients are more likely to present initially to a primary health care nurse or doctor, with oral or dental needs. [2,3] This is partly due to the shortages of oral health professionals and facilities in the public sector, where the current number of oral health professionals in South Africa is not adequate to meet the population needs.[4] In the United Kingdom, many patients with oral health concerns present initially to their General Practitioner.[5] Doctors and nurses working in primary care have an important role to play in prevention, early diagnosis and management of certain oral conditions, or appropriate referral to the closest dental or other specialist service. Oral diseases often have an asymptomatic and insidious onset, and routine oral examinations are important to detect and offer early treatment. Doctors and nurses working in primary care have an advantageous position where they are able to promote oral health, diagnose early disease and prevent the development or progression of disease.

A major public health problem

Oral diseases remain a major public health problem because of their high prevalence, severity and ability to impact quality of life.[6] A recent South African study revealed that one in five South Africans had experienced oral pain in the last six months. [3] The National Children's Oral Health Survey [7] is a relatively recent source of epidemiological data regarding the incidence of dental caries in children. The report, published in 2003, stated that between 45-60% of children in South Africa suffered from dental caries, with the highest rates recorded in urban areas. The highest reported dental caries rates were in the Western Cape, and the lowest in the Limpopo province. Tooth loss occurs as a result of dental caries and periodontal disease. Globally it has been reported that approximately 30% of people aged 65-74 have no natural teeth. [1]

The most serious of oral lesions is oral carcinoma, most commonly squamous cell carcinoma. Oral cancer is ranked the 8th most common cancer in the world. [8] The oral cavity is easily accessible for clinical examination, yet oral cancers often go misdiagnosed or undetected. A survey in the UK found that early squamous cell carcinoma was misdiagnosed by 80% of hospital doctors. [9] In India, 60-80% of patients with oral cancer presented with advanced disease, as compared to 40% in developed countries.[10] A further concern is that there are well-defined risk factors for oral cancers (alcohol use, tobacco smoking and Human Papilloma virus), and many of these are modifiable.

The burden of oral cancer in South Africa was described following a seven-year review of cases of oral cancer from 1996-2002. [11] It is noted that the incidence of oral cancer had increased by 8.4% compared to the previous seven-year survey. In the UK, the incidence of oral cancers has risen by one third in the last decade, according to a study published in 2016.[5] In the South African study, the mean incidence of oral cancer in males, across racial groups, was 6.19 in 100 000, and in females, was 1.6 in 100 000. The highest incidence of oral cancers was found in the male coloured population group, with an incidence of 13.4 in 100 000. Chronic

tobacco smoking, tobacco chewing, and alcohol consumption are well-established causes of oral cancers, and remain highly popular lifestyle choices in our society.

One of the reasons for the importance of oral health is linked to its ability to significantly impact quality of life. Patients suffering from oral disease may present with impaired function of the oral cavity leading to difficulty when eating, poor nutrition, poor speech and chronic pain. Children and adults with tooth loss have impaired ability to chew food, thus avoiding certain foods, which may lead to insufficient nutritional intake and malnourishment. People with oral health problems may suffer financial loss due to the cost of the condition, indirect costs associated with loss of productivity such as the days lost from work or school, as well as the intangible cost of the suffering experienced by the individual.[3] Most oral health services are only available during school and work hours. [4]

Oral health and systemic disease

Oral health is also important because poor oral health is a risk factor for systemic disease. This can be explained by the multiple common risk factors for poor oral health being similar to those for other non-communicable diseases, e.g. tobacco use, diet, excess alcohol consumption and stress. However many oral conditions also place patients at risk of the progression or complications of existing comorbid systemic disease. Commonly known relations exist between periodontitis and the risk of infective endocarditis in patients with valvular heart disease, however some lesser known relations exist between periodontitis and coronary artery disease, diabetes, or pregnancy complications. Some studies have shown that periodontitis in pregnant women has been associated with pre-eclampsia, preterm birth and low birth weight. [14] Due to other conflicting evidence stating that periodontitis does not have an effect on pregnancy complications; there is no firm stance on the topic. However, despite the controversy, oral examinations, periodontal treatment and caries control, are recommended in most antenatal care guidelines. [14] It has been found that there is a greater prevalence of periodontal disease in patients with diabetes, as well as faster disease progression.[13] Periodontitis produces a systemic

inflammatory response associated with the release of inflammatory cytokines and acute phase reactants, which may be a factor in atherosclerotic plaque rupture in coronary artery disease. [12]

Systemic diseases may present with oral manifestations; and often the first presentation of a systemic disease is with an oral health complaint. It is therefore important that a proper oral examination should be an essential part of a complete clinical examination in a medical practice. There are many examples of these systemic conditions ranging from chronic diseases of lifestyle to autoimmune diseases and infectious diseases. Examples include diabetes mellitus presenting with oral candidiasis due to impaired immune function; autoimmune diseases (Crohn's disease or Systemic lupus erythematosus) presenting with recurrent mouth ulcers; and HIV infection presenting with candidiasis, leukoplakia or Kaposi's sarcoma.[14] A policy for prevention of oral manifestations in HIV/AIDS stated that approximately 40-50% of HIV-positive patients have an oral fungal, bacterial or viral infection, and these often occur early in the course of HIV disease. [1] Doctors and nurses regularly examining the oral cavity of patients may detect suspicious lesions and conduct further screening tests earlier than those who miss these clinical signs of serious systemic disease. Often oral lesions in combination with other symptoms and signs will aid in making the correct diagnosis.

Primary care practitioners' role in oral health care

Physicians and nurse practitioners working in primary care have a unique opportunity to act as oral health promoters. Common oral diseases e.g. periodontal disease and dental caries are considered to be behavioural diseases because the lack of good oral hygiene habits plays a significant role in their development. [2] Tobacco use and excessive alcohol consumption account for up to 90% of oral cancers [13], where health promotion could easily prevent serious disease. Patients consult doctors and nurses for a variety of conditions, the average person far more often and earlier in life than they might visit a dentist. Primary care practitioners can take the opportunity to offer oral health assessments, oral hygiene advice, and recommend regular dental check-ups. This is certainly true and important for

doctors and nurses treating children, where dental caries remains the most common childhood illness. It is also relevant for practitioners treating the elderly, who require more frequent oral and dental care, due to tooth loss, or in more affluent countries, restored natural teeth through available dental care. A qualitative interview study conducted in Stockholm found that family medicine specialists showed little or no awareness of the oral health of their elderly patients.[15] Contributing factors included lack of time during a consultation, and the assignment of responsibility of oral health care. The doctors interviewed, in this first world study, commented that it was a patient's responsibility to report oral health issues, or identify the need for dental care, and to arrange dental care for themselves. It is noted that in this study, patients are likely to have higher levels of education, more knowledge about oral health care and more access to oral health facilities, compared to the majority of patients in South Africa. Another contributing factor described as a "cultural gap" describes the gap between the disciplines of medicine and dentistry. It was reported that there is a lack of integration and collaboration between the medical services and dental services, referencing the separate undergraduate training programs, separate referral networks, and different insurance systems as the reason for the segregation of the professions. This traditional segregation of the professions may be part of the reluctance for doctors to include an oral examination into their general examination of a patient.[15]

GPs are the health professionals most frequently consulted by elderly patients. Medications frequently prescribed among the elderly have the potential to alter saliva, and cause xerostomia (dry mouth). An essential component of a healthy oral cavity includes correct salivary composition and flow. Xerostomia causes a subjective complaint of dry mouth, and affects the ability to chew, talk, swallow and wear dentures comfortably. Xerostomia due to hyposalivation can lead to worsening dental caries, oral fungal infections and halitosis. It is therefore important that prescribing doctors carefully consider the side effects of medications, enquire about this symptom, and aspire to manage it correctly.[16]

Another qualitative study conducted in Australia about General Practitioners' knowledge and management of a common oral health condition, dry mouth, reported that dry mouth was not an issue of importance for GPs.[17] It was often not asked about, taken seriously, or managed correctly, according to this study. This is consistent with other studies where dry mouth is overlooked or neglected by health professionals. It also highlighted some of the information sources used to assist them in managing this condition. Respondents reported using websites that they trusted e.g. The Royal Australian College of General Practitioners, journals, textbooks, locally developed therapeutic guidelines or consultations with specialist GP colleagues. This study identified that Australian GPs want to learn more about oral health, a finding commonly reflected in the literature reviewed.[17, 18, 19] Further comments were made about the need for patient education about managing oral health conditions, and preventative dental health care, possibly in the form of brochures or relevant patient-centred websites.

A survey conducted in the United Kingdom found that although the majority of doctors surveyed felt it was important to examine the mouths of older patients, only a minority (19%) did so. Reasons given were lack of confidence in examining the oral cavity (56%) and insufficient training in the oral examination (77%). [9]

General Practitioners in the UK have a formal postgraduate training programme, which differs from the South African system where GPs and primary care doctors do not yet have to follow a formal training programme. However, interestingly, a study conducted in the UK, which assessed the oral health education in this postgraduate training programme reported that the quality of training was poor, compared to the core oral health competencies in the RCGP curriculum, and that a need existed for more oral health training for GPs.[5] Concern was expressed about the examination of the oral cavity, knowledge of normal oral anatomy, the awareness of common dental problems, knowledge of benign oral pathology and oral cancers. The vast majority of participants agreed that trainees would benefit from more training in oral health. The preferred methods of training included access to specialist tutors, e-learning programmes, and problem-based learning sessions.

Primary care: the gateway to specialist care

Primary care practitioners are often the gateway to more specialized health care where needed. The thorough clinical examination of patients, including examining the oral cavity, can lead to early detection of disease and a better prognosis for the patient. This is particularly true of diseases like suspected oral cancers, where early suspicion and referral for biopsy will significantly improve the prognosis. Failure to carry out oral examinations is probably multifactorial, and includes reasons such as insufficient time, insufficient training, and lack of confidence. [9]

The willingness and ability of South African doctors and nurses to adequately examine the oral cavity, initiate management of oral disease and collaborate with dentists has not been studied. A literature search for similar South African studies did not yield results. There were no studies conducted in the Western Cape found, hence the need for a research study aimed at the current situation regarding oral health care delivery by primary care providers. It is vital that primary care practitioners become more aware of the oral diseases, are adequately trained in early identification and appropriate referral, in order to improve the oral health and general health for the population that they serve.

Purpose of the Study and Research Objectives

The overall purpose of the study is to improve oral health care in the Metro District Health Service (MDHS) in Cape Town. This study aimed to describe current oral health care practice provided by primary care providers and to assess whether current practice may benefit from interventions to improve the quality of care.

The objectives of the study include:

a) To determine current oral health related knowledge and practice, in the management of common oral health conditions in primary care facilities in the MDHS.

b) To determine current attitudes towards oral health and the perceived importance of oral health in providing comprehensive primary care to patients.
c) To determine whether a need exists for promoting further oral and dental health education to primary care practitioners.

Method

Study Design

This research project has used a mixed methodology. The nominal group technique (NGT) was used to determine and obtain consensus from a panel of primary care practitioners on their top five factors determining current oral health practice in the Cape Town public sector primary care service.

The nominal group helped the researcher construct and delineate a structured questionnaire that was then distributed to a larger number of primary care providers as a cross-sectional, self-administered survey.

Study Population

The participants were primary care practitioners employed by the Metro Distric Health Services (MDHS) in Cape Town. The inclusion criteria were doctors and clinical nurse practitioners (CNPs) who have been practicing primary care in the Cape Town metropole for more than 3 months. Second year interns completing their Family Medicine rotation were also included, if they had worked for more than three months at participating health centres. Doctors with a dentistry background were excluded from this study. Doctors and CNPs had to be registered with their respective statutory professional bodies implying that professional education and training has satisfactorily been completed: doctors with the Health Professions Council of South Africa (HPCSA) and nurses with the South African Nursing Council

(SANC). This is usually assumed if the doctors and nurses are employed in South Africa, certainly in the Western Cape.

Study Sites

The study was conducted at five Community Health Centres (CHCs) in the Cape Town Metropole, which is made up of eight subdistricts with a total of 51 CHCs. The study sites spanned four subdistricts and included Hanover Park CHC, Gugulethu CHC, Vanguard CHC, Mitchell's Plain CHC and Retreat CHC. Permission was granted by the relevant Clinical Managers at these sites and by the National Health Research committee for research performed at government facilities.

Selection Criteria and Recruitment

A group comprising approximately 8 primary care practitioners (key informants) met together with the researcher as the NGT expert panel. This group was representative of primary care practitioners including clinical nurse practitioners working in the Cape Town Metropole. The NGT was conducted at Gugulethu Community Health Centre, with predominantly Gugulethu staff. The participants were invited to the panel by the investigator via email to participate in the structured NGT process. Only medical officers or CNPs working in primary care for more than 12 months were included.

The questionnaire component of the study was undertaken using convenience sampling; where doctors and clinical nurse practitioners who were available on the day and met the inclusion criteria were asked to participate in the study.

Research Procedures and Data Collection Methods

Nominal Group Technique process

The research procedure used with the expert panel followed the Nominal Group Technique stepped process (Appendix 7). The Nominal Group Technique (NGT)[20] helps to gather data that is difficult to gather from quantitative methods. The NGT was conducted by the principal investigator and the student researcher, one of whom acted as the keeper of record. The topic was presented to the group using the following two questions: *"What challenges do you face as a primary care practitioner regarding the provision of oral health care?"* and *"How can oral health care be strengthened at Community Health Centres?"* The panelists responses were elicited and recorded using the structured NGT method, including presentation of the question, the silent phase, item generation and clarification, and prioritisation. Responses were recorded on flip-chart sheets. After clarifying the meaning of recorded responses where necessary and merging similar responses, the final list of five main items was presented to the panel for review followed by the prioritisation and voting steps (steps six and seven in the NGT method). The scoring system used in the NGT method is as follows; each item or statement is given a priority value (hereinafter termed as the "rating") of between one and five by the participants, where one is most important and five is least important. Each rating is then given a specific points value as follows, where a rating of one is given five points (highest score), and a rating of two is given four points, a rating of three (three points), rating of four (two points), and rating of five (one point). Points are then totalled per item (statement) to get an overall ranking. The item with the highest points total is ranked number one. Please see the example below.

No	Item	Ratings	Score	Rank
1	Limited clinical knowledge	1,1,2	14 (5+5+4)	1
2	Limited dental services	1,4,5	8 (5+2+1)	2
3	Demotivated staff	5,5,4,	4 (1+1+2)	3

The outcome represented the panel's consensus on their top five responses to each question. No audio recordings were made. The results of the NGT structured process helped to construct the questionnaire (Appendix 9) as described below.

Questionnaire development and administration

The questionnaire (Appendix 9) was created by the student researcher and supervisor after reviewing other examples of surveys in the literature, and after consulting with a dentist as an expert informant in the Faculty of Health Sciences at UCT. Some of the topics covered in the questionnaire were those generated by the NGT process (presented in the results section below), and which highlighted the important contributing factors to the provision of oral health care by primary care practitioners. Following the group meeting, and the finalisation of the questionnaire, the questionnaire was piloted by six doctors and CNPs not involved in the Nominal Group discussion, to assess it for clarity and comprehension.

The aim of the research was to ascertain knowledge, attitudes and current practice of practitioners working in the Cape Town public sector Primary Care setting; and to highlight any needs for intervention or further training, with the primary goal of improving patient care. The first part of the questionnaire obtained participants' demographic information, followed by sections related to clinical knowledge, current attitudes and practice in the realm of oral health. The questions used a variety of formats: yes/no questions, rating responses using Likert Scales and others for clinical knowledge questions.

With prior arrangement and agreement with the respective CHC facility managers, the investigator personally attended a regular staff meeting, and explained the purpose of her research. An informed consent process (Appendix 8) was adhered to. Questionnaires were distributed by hand during the staff meeting at the selected facilities. Questionnaires were completed anonymously; doctors and CNPs had the choice whether to participate or not. The majority of the completed questionnaires were collected immediately. Where questionnaires were not completed immediately

– due to unplanned interruptions - participants completed them at a convenient time. The researcher awaited completion of outstanding questionnaires and arranged collection via the Clinical Manager of the facility. Forming an appendix to this document are the participant information sheet, the consent form, and the questionnaire (used as the data collection tool).

Ethical Considerations

The Human Research Ethics Committee at the University of Cape Town, and the Provincial Government Ethics Committee via the National Health Research Database approved the study. This study is compliant with the World Medical Association's Declaration of Helsinki (2013) [21] as well as the South African Department of Health's "Ethics in Health Research: Principles, Structures and Processes" [22]

Results

Nominal Group Technique

Items generated in the item generation phase of the NGT are summarised in Table 1. The first question was *"What challenges do you face as a primary care practitioner regarding the provision of oral health care?*" The panellists achieved consensus on three broad categories from the issues raised, including: clinical staff have inadequate knowledge of and inadequate clinical skills in managing oral health conditions; that poor communication exists between the oral health service and primary care service; and that these services are not integrated and thirdly; the general ideas, expectations, and beliefs patients had about their oral health.

Table 1 What are some of the challenges facing primary care practitioners regarding providing primary health care?

No	Item	Ratings	Score	Rank
1.	Expense of oral hygiene products		0	
2.	Patient ideas, expectation, beliefs about oral health	2,2,2,4,5,4,	17	**3**
3.	Poor communication between and integration of oral health service with primary care service	1,2,3,4,3,3,	20	**2**
4.	Staff have inadequate knowledge of and clinical skills in managing oral health conditions	1,2,1,1,1,2	28	**1**
5.	Insufficient time to focus on oral health during the consultation	3	3	
6.	Limited oral health services and limited pharmacy conditions services when prescribing for oral health	1,4,5	8	**4**
7.	Long patient waiting times		0	
8.	Demotivated staff to assist with oral health conditions	5,5,4,5	5	**5**

The second question *"How can oral health care be strengthened at Community Health Centres?"* generated ideas such as training clinicians in oral health conditions, improving attitudes and motivation of clinicians to provide oral health care, improving patient education on the importance of oral health, improving the accessibility of oral health services, and improving the integration of Primary Care Services and Oral Health Service. As can be seen in the questionnaire (question 2a – c and question 8a – e), these consensus lists informed its development described in the methods section.

Table 2 How can oral health care be strengthened at the Community Health Centres?

No	Item	Ratings	Score	Rank
1.	Improved attitude and motivation of clinicians to provide oral health care	3,2,4	9	**2**
2.	Improving patient education on the importance of oral health	2,3,5	8	**3**
3.	Improving the accessibility of Oral Health Services	5,4,3	6	**5**
4.	Training clinicians in oral health conditions	1,1,1	15	**1**
5.	Integration of Primary Care and Oral health service	4,5,2	7	**4**

Questionnaire

A total of 53 doctors and clinical nurse practitioners from five selected Community Health Centres completed the questionnaire. All the participants provided informed consent and completed the questionnaire anonymously.

The data was analysed using Stata/SE 13.0 for Windows (Revision 17 Jun 2013). Data were summarized using medians, interquartile ranges and absolute ranges for numeric variables, and frequency tables for categorical variables. Associations between age and scores were tested using Spearman's rho. Associations between categorical variables were tested using Wilcoxon rank-sum (Mann-Whitney) test.

Demographic information

A total of 35 doctors and 18 clinical nurse practitioners (CNPs) completed the questionnaire, with a mean age of 37 years. Three of the doctors were specialist family physicians; the rest of the doctors were then working in primary health care as medical officers or second year interns. Of the 18 CNPs, three had postgraduate diplomas in various areas of clinical practice. All the participants were working full time in government Community Health Centres (CHC). The majority (42) of participants had experience of less than 10 years, with a mean of 4.9 years. A total of 11 participants had been practicing for 10 years or more, with a mean of 20.6 years. The mean number of patients seen per day by a participant was 30. When asked to report on the location and type of nearest oral health service (a facility with a dentist and dental assistants), 43% reported that their local Oral Health Service was a public facility and onsite, while 35.9% reported a public facility which was offsite. A significant 13.2% of participants reported not knowing the location of their closest oral health facility. These results were the participants' reported knowledge of local oral health facilities and may not accurately reflect availability of oral health services.

582 Table 3: Demographic information

583

	N (%)	Note
Number of participants:		
Doctors	35 (66%)	
Nurses	18 (43%)	
Highest qualification of participants		
MBBCh	32 (60.4%)	
CNP	18 (34%)	
PG dip	3 (5.7%)	
Family phys	3 (5.7%)	
Years in practice		
<10 years	42 (79.2%)	Mean 4.9 years
>=10 years	11 (20.8%)	Mean 20.6 years
Average number of patients seen daily	30 (56.6%)	
Local OHS (participants' knowledge)		
Onsite	23 (42.9%)	
Offsite	19 (35.9%)	
Unknown	7 (13.2%)	
Private	3 (5.7%)	

584

585 ***Oral health education and training***

586

587 The majority of participants (56.6%) reported having received one month of oral
588 health training during their undergraduate training programs, while 35.9% reported
589 having received no undergraduate training in oral health. Only 30.2% of participants
590 (16) reported ongoing postgraduate training in oral health. The follow-on questions
591 regarding the nature of the continuing postgraduate training were poorly answered,
592 with only 6 participants (11.3%) reporting that they regularly read medical journals,
593 consult colleagues, attend CPD seminars or use point-of-care online tools.

594

595 When asked what methods might be most helpful in furthering learning in this field,
596 participants were able to recommend more than one method. The highest ranked
597 method was shared between reading professional guidelines and using online
598 resources (self-directed), where 84.9% of participants selected these two methods
599 as their preferred methods for Continuing Medical Education (CME). A large number

of participants (71.7%) also ranked in-house training by a dentist as an intervention for advancing their knowledge and skills in providing oral health care. CME courses and posters and pamphlets respectively ranked lowest in the preferred options.

Table 4: Oral Health Education and training

	N (%)
a) Education and training	
Undergraduate training	
None	19 (35.9)
1 month	30 (56.6)
>1 month	3 (5.7)
Postgraduate training	
Yes	**16 (30.2)**
No	36 (67.9)
b) Further learning - preferred method	
Professional guidelines	**45 (84.9)**
CME courses	33 (62.3)
Pamphlets	12 (22.6)
In-house training	**38 (71.7)**
Online	**45 (84.9)**
Other	19 (35.8)

It is noted that the above percentages do not total 100%. Balancing percentage is due missing data.

Current oral health-related practice

Practitioners were asked about the frequency of performing a complete oral examination. Only 17% of participants reported routinely examining the oral cavity, as part of their general examination of a patient. The majority (50.9%) of participants examined the oral cavity on suspicion that they may detect an abnormality. One participant admitted never examining the oral cavity.

Table 5: Examination of the oral cavity

	N (%)
Examination of the oral cavity	
routinely	**9 (17)**
on request	11 (20.8)
on suspicion	**27 (50.9)**
occasionally	5 (9.4)
never	1 (1.9)

The most commonly encountered oral conditions were dental caries and halitosis as these were reportedly seen daily by 24.5% of participants. The majority of participants reported that they see gingivitis and mouth ulcers monthly (56.6% and 43.4% respectively). A large number of the participants (66%) reported never seeing suspected oral cancers, while 30.2% reported seeing suspected oral cancers monthly. Oral trauma was encountered weekly by 30.2% of participants, and monthly by 34% of participants.

Table 6: Common oral conditions

	Daily	Twice a week	Weekly	Monthly	Never	Missing
How often do you encounter these oral conditions						
dental caries	**24,5%**	13,2%	20,8%	30,2%	7,6%	3,8%
gingivitis	1,9%	5,7%	17,0%	**56,6%**	13,2%	5,7%
mouth ulcer	9,4%	9,4%	24,5%	**43,4%**	11,3%	1,9%
cancer				**30,2%**	**66,0%**	3,8%
halitosis	**24,5%**	18,9%	15,0%	26,4%	11,3%	3,8%
trauma	1,9%	11,3%	**30,2%**	**34,0%**	20,8%	1,9%
dry mouth	5,7%	11,3%	24,5%	30,2%	26,4%	1,9%

Current oral health-related knowledge

An overwhelming majority of participants correctly listed risk factors for oral disease to include an unhealthy diet (86.8%), tobacco smoking (90.6%) and poor oral hygiene (100%), while 66% of participants correctly identified harmful alcohol use as a risk factor for oral disease.

Table 7: Risk factors for oral diseases

	Agree	Disagree
Unhealthy diet	**46 (86.8%)**	7 (13.2%)
Alcohol	**35 (66%)**	18 (34%)
Chewing gum	13 (24.5%)	40 (75.5%)
Smoking	**48 (90.6%)**	5 (9.4%)
Poor oral hygiene	**53 (100%)**	0

The questionnaire included a clinical knowledge assessment; in the form of matching an oral condition to its associated systemic disease. This question proved not very easily understood, and raised the most number of questions and concern by the participants to the researcher, during the data collection. The results reflected poor understanding of the question and limited knowledge of the topic. The mean results out of seven (7), was three (3), with a minimum of zero, and a maximum of seven (7).

Participants were asked questions related to their self-rated knowledge and confidence in managing oral health conditions, using a Likert scale. An overwhelming majority of respondents reported that they were mostly confident, or very confident in recognizing dental caries (88.4%). Participants were also mostly or very confident (reporting a 4 or 5 on the Likert scale) when asked if they would recognize gingivitis / periodontal disease (71.7%), mouth ulcers (92%), halitosis (83%), as well as oral trauma (75%). Participants reported feeling fairly confident or mostly confident at recognizing suspected oral cancers and dry mouth (xerostomia).

A substantial amount (28%) of participants reported feeling not confident or having very little confidence in recognizing suspected oral cancers.

Table 8: Recognition and management of common oral diseases

	Not confident/ limited confidence	Confident	Missing
a) Ability to recognise			
dental caries	6 (11.3%)	**47 (88.4%)**	
gingivitis	15 (28.3%)	**38 (71.7%)**	
mouth ulcer	4 (7.5%)	**49 (92.5%)**	
cancer	37 (70%)	**15 (28.3%)**	
halitosis	9 (17%)	**44 (83%)**	
trauma	13 (24.5%)	**40 (75.5%)**	
dry mouth	32 (60.4%)	18 (34%)	
b) Ability to manage			
dental caries	20 (37.7%)	**32 (60.4%)**	1
gingivitis	25 (47%)	29 (54.7%)	1
mouth ulcer	13 (24.5%)	39 (73.6%)	1
cancer	37 (70%)	15 (28.3%)	1
halitosis	29 (54.7%)	23 (43.4%)	1
trauma	23 (43.4%)	29 (54.7%)	1
dry mouth	38 (71.7%)	13 (24.5%)	2

Participants were asked to rate their confidence in initiating a management plan for the common oral diseases described above. A clear majority (60%) reported that they were mostly confident or very confident in managing dental caries. Participants reported having a fair amount of confidence but would consult a colleague or reference, when attempting to provide management for suspected oral cancers, halitosis and oral trauma from injuries (49%, 32%, and 34% respectively). Follow-up questions asking specific details of a management plan were not presented to the participants, and so their specific management plans could not be assessed.

When asked about a general self-confidence to identify and diagnose any patient with a common oral health condition, 52.8% of participants agreed, 13.2 % participants strongly agreed, and 20.8% of participants disagreed.

When asked similarly if they felt generally knowledgeable enough to initiate treatment, follow patients up, and/or refer appropriately, the majority of participants (55%) agreed or strongly agreed that they felt knowledgeable enough. This was closely followed by a group of participants who disagreed (32.1%) with the statement about treatment and referral.

Table 9: Self-rated confidence and knowledge

	N (%)
"I feel confident to identify and diagnose any patient with a common oral health condition"	
Agree	**35 (66%)**
Not sure	6 (11.3%)
Disagree	**11 (20.8%)**
(missing)	1 (1.9%)
" I feel knowledgeable enough to initiate treatment, follow up, and refer any patient with a common oral health condition "	
Agree	**29 (55%)**
Not sure	6 (11.3%)
Disagree	**17 (32.1%)**
(missing)	1 (1.9%)

Willingness to provide oral screening, counseling, health promotion, perceived importance of their role in promoting oral health

Almost half of the respondents (41.5%) reported that they promote oral health or discuss preventing oral diseases, only on suspicion of disease. This may be the result of a general health complaint, which led practitioners to believe they needed to promote oral health. Almost a third (28.3%) reported that they occasionally discuss oral health with patients, while a small portion (13.2%) stated that they routinely promote oral health and discuss disease prevention. When asked what the limiting

factors were (to providing oral health promotion and prevention) an overwhelming majority of participants reported insufficient time during consultations (86.8%) followed by forgetting to include oral health promotion counseling in a consultation (45.3%), a limited knowledge of oral disease and risk factors (41.5%) and limited access to Oral Health Services (41.5%).

The primary care practitioners were asked how important it was to address the oral and dental health needs of their patients; 43.4% reported it was important, and 37.7% reported it was very important. Following that, they were asked how their patients perceive the importance of oral health. An overwhelming majority of 90.5% reported that patients view their oral heath as not important or somewhat important, with only one (1.9%) reported patients viewing their health as very important.

Primary care practitioners were posed the question “Are you willing to provide health promotion and screening for oral health matters?” The responses were diverse, with most of the participants reported “sometimes”, or “most of the time” (30.2% and 28.3% respectively).

728 Table 10: Willingness to provide oral health

	N (%)
a) How often do you promote oral health? Or discuss preventing oral disease in your consultations?	
routinely	**7 (13.2%)**
on request	4 (7.6%)
on suspicion	**22 (41.5%)**
occasionally	**15 (28.3%)**
never	5 (9.4%)
b) What are the limiting factors to providing oral health promotion?	
Forget to include oral health promotion counselling	**24 (45.3%)**
Limited knowledge	**22 (41.5%)**
Insufficient time	**46 (86.8%)**
Limited access to OHS	**22 (41.5%)**
c) As a primary care practitioner, how important is it to you to address the oral (and dental) health needs of your patients? (results dichotimised)	
Not/ somewhat important	**9 (17%)**
Important/very important	**43 (81.1%)**
d) In your opinion, how do patients perceive the importance of oral health?	
Not/ somewhat important	**48 (90.5%)**
Important/very important	4 (7.6%)
e) Are you willing to provide health promotion and screening for oral health matters?	
Never	0
Sometimes	**16 (30.2%)**
Most of the time	**15 (28.3%)**
Always	**11 (20.8%)**
Not sure	10 (18.9%)

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730

Challenges to providing oral health care and suggestions for strengthening oral health care

A clear majority of participants agreed or strongly agreed (62.3%) that staff has inadequate knowledge of oral health conditions and inadequate clinical skills in managing oral health conditions. Most participants agreed or strongly agreed (77.4%) that poor communication exists between the Oral Health Service (OHS) and the Primary Care Service (PCS). When asked whether patient ideas, expectations and beliefs about oral health posed a challenge to providing oral health care, 30.2% of responses were indifferent, and 64.2% of participants agreed or strongly agreed.

Table 11: Challenges to providing oral health care

	N (%)
Challenges	
Staff have inadequate knowledge	
Agree	**33 (62.3%)**
Disagree	12 (22.7%)
Neutral	8 (15%)
Poor communication between OHS and PHCS	
Agree	**41 (77.4%)**
Disagree	8 (15.1%)
Neutral	4 (7.6%)
Patient ideas, expectation and belief.	
Agree	**34 (64.2%)**
Disagree	3 (5.7%)
Neutral	**16 (30.2%)**

The local Oral Health Service (e.g. dentist and/or oral hygienist) was perceived as accessible by 56.5% of the participants, while approximately 45% reported it inaccessible or not sure whether it was accessible. Reasons given for the inaccessibility of the local Oral Health Service included oral health services not on same premises as clinic (35.9%), limited appointments available and long waiting times (32%), unclear referral pathways (26.4%), and oral health services and primary care services not integrated (22.6%).

Table 12: Accessibility of Oral Health Services

	N (%)
a) The local oral health service (OHS) is accessible to my patients	
Agree	**30 (56.5%)**
Disagree/not sure	**23 (45.5%)**
b) Reasons for inaccessibility	
OHS not on same premises as clinic	**19 (35.9%)**
Limited appointments and long waiting times	**17 (32%)**
Unclear referral pathways	**14 (26.4%)**
OHS and PHS not integrated	**12 (22.6%)**

Following fruitful discussion during the nominal group technique meeting, the question was posed to participants about how health care can be strengthened at the Community Health Centres. The majority (96.2%) of participants agreed or strongly agreed that training clinicians in oral health conditions would benefit the service, 94.3% of participants agreed or strongly agreed that improved attitudes and motivation of clinicians would improve oral health care, 97.9% agreed or strongly agreed that improving patient education on the importance of oral health would strengthen the oral health care provided at primary care level. The overwhelming majority also agreed or strongly agreed that improving the accessibility of the Oral Health Services (98.1%) and the integration of Primary Care Services and the Oral Health Service (96.3%) would strengthen and improve the services offered to patients.

Table 13 Suggestions to strengthen oral health care

	Agree N (%)	**Disagree** N (%)	Not sure/ missing
Training clinicians in oral helath conditions	**51 (96.2%)**	1 (1.9%)	1
Improved attitude and motivation of clinicians to provide oral helath care	**50 (94.3%)**	1 (1.9%)	2
Improving patient education on the importance of oral health	**52 (97.9%)**	0	1
Improving the accessibility of OHS	**52 (98.1%)**	0	1
Integration of Primary Care Services and Oral Health Services	**51 (96.3%)**	0	2

Associations between demographic statistics and knowledge scores

When reviewing associations between demographics and the knowledge scores attained in the clinical knowledge question, no significant association was found either between age and knowledge score or between years in practice and knowledge score. There was a significant association found between profession and knowledge score (doctor versus clinical nurse practitioner). (Statistics available via Appendix 10)

Discussion

Introduction

This study sought to determine current knowledge, attitudes and practice regarding the oral health care by practitioners (doctors and clinical nurse practitioners) in the public sector primary care setting in Cape Town. While it is noted that an entire clinical discipline of oral health care exists, primary care practitioners are often faced with initial diagnosis and management of oral disease. This study therefore attempted to describe current oral health practice and determine whether primary care practitioners might benefit from interventions to improve service delivery. The literature shows that many primary care practitioners experience a degree of discomfort in oral health care and would like further training in this area of clinical practice. We expected that primary care practitioners in Cape Town might experience similar discomfort and have similar learning needs.

Practice: Current oral health-related practice

Practitioners were asked about the examination of the oral cavity- whether this was routinely done during their clinical examination of a patient. A minority did so routinely, most participants examined only on suspicion of an abnormality. As discussed above, oral health can be an indicator of systemic disease, and can cause progression of systemic disease. It is an easily accessible part of the body, is quick to examine, and may yield important information about the patient's general state of health. However we recognize that this question had limitations due to the fact that it asked for a yes / no response and, as a consequence, failed to assess whether the said examination was done correctly or completely.

The most commonly encountered conditions by this sample of practitioners were dental caries and halitosis. Both of these conditions can be markers or precipitants of periodontitis, a more severe infection, which needs urgent treatment. Tooth

decay or loss and halitosis can also have a significant social impact, due to foul-smelling breath or the loss of the ability to chew normal food. These factors obviously can both lead to social distress. The vast majority of primary care practitioners felt mostly confident or very confident in recognizing dental caries and halitosis, while 60% of practitioners felt confident in initiating a management plan for dental caries, and 43.4% of practitioners felt confident to initiate a management plan for halitosis. These results indicate a need for further training to improve recognition and management of these extremely common oral health conditions.

The most serious oral lesion is that of oral cancer, most commonly squamous cell carcinoma. Oral cancers have well- defined premalignant lesions, which can be detected and referred for specialist opinion promptly. This cancer has the potential to spread locally and metastasize and cause early death in patients if it goes undiagnosed or untreated. Almost a third (28%) of participants expressed a lack of confidence in recognizing this serious condition. Oral cancer is life-threatening condition and therefore requires urgent referral to an Ear, Nose and Throat surgeon or a maxillofacial surgeon. It is imperative that primary care providers have a high index of suspicion when seeing non-healing oral ulcers, particularly in patients with risk factors for oral cancer.

Oral trauma is commonly seen at the study sites, due to all the sites having a 24-hour emergency unit, and the high rates of interpersonal violence and motor vehicle accidents in Cape Town. In this study, oral trauma was reportedly seen monthly by 30% of participants, and weekly by 28% of participants. It is essential to manage oral trauma appropriately. Tooth fractures or avulsion require urgent maxillofacial care in order to restore dentition and prevent further complications.

Practitioners were asked to report on challenges that they faced regarding delivering oral health care. The findings were in keeping with what GPs reported in other studies; and included practitioners' lack of clinical knowledge and skill in providing oral health care.[5] In addition, poor communication between primary care providers and the Oral Health Service, and the lack of integration of the two disciplines were

highlighted, as well as patients' ideas and belief about oral health care. The practitioners reported their opinions during the NGT meeting, and expressed how they perceive patients' interest in their oral health. Some of the opinions expressed included patients not understanding the importance of oral health, and therefore often presenting late with illnesses, and patients having limited understanding of services, therefore consulting the incorrect practitioner when it comes to oral health. Some practitioners reported that patients have personal fears around visiting dentists, or perceive dentists as inaccessible. Inaccessibility of dentists may be related to time of dental work hours or physical location of dental services.[4] One practitioner reported that patients often do not have a personal relationship with a dentist, whereas they may have a relationship with a doctor or nurse at their local clinic.

Health education is an integral part of registered nurses' responsibilities.[4] Education and health promotion should be offered as part of a primary care visit. Education and information sessions for the public about general oral healthcare can be done in health promotion drives in the community.

Knowledge: Current oral health-related knowledge. Oral health education and training, including further training

The assessment of knowledge was done using clinical knowledge questions as well as subjective assessments of personal knowledge. Participants were aware of the risk factors for oral disease. This is reassuring in that they are clearly able to educate patients correctly should they have the time, motivation and incentive to do so. A clinical knowledge question asking participants to match oral conditions with the associated systemic disease yielded poor results, with the mean score being 3/7. This is of concern as oral disease and systemic disease are often related and a good oral health assessment may indicate serious underlying systemic disease, for example oral candidiasis in HIV infected persons. The self-rated knowledge and confidence questions are difficult to accurately analyse, as participants may exaggerate or

884 understate their knowledge. Undoubtedly, this is a limiting factor in these
885 questions.
886 When comparing the number of years of experience with the clinical knowledge
887 scores, in order to assess whether recent graduates retained more oral health
888 knowledge, or whether time and experience benefitted older doctors, there was no
889 significant difference between the two groups.
890
891 Particular attention must be given to the report on whether practitioners continue
892 to receive training, at a postgraduate level. Only 16 of the 53 participants continued
893 to receive training in oral health. The most popular methods requested for further
894 training include reading professional guidelines on particular topics, self-directed
895 online learning and in-house training by visiting dentists.
896
897 Practitioners need to be motivated to continue learning in order to provide quality
898 care for patients. This raises a question about the practitioners' attitude, willingness
899 and motivation to provide oral health promotion and treatment.
900
901 **Attitudes**: Willingness to provide oral screening, counseling, oral health promotion
902
903 The overall attitude of practitioners to participating in this research project was
904 good. All the eligible practitioners agreed to take part, with no participants removing
905 themselves during the course of the study. Participants informed the researcher that
906 they were interested in the findings of the study and were keen to understand what
907 methods could be used to deliver better care.
908
909 In order to continue to deliver good health care, health care professionals need to
910 have a constant desire for more knowledge, which requires effort and sacrifice. The
911 attitude of doctors and nurses, and other health professionals, is a crucial
912 component to delivering quality care. A positive, enthusiastic attitude is necessary
913 for offering health promotion, for encouraging healthy lifestyles, for studying to gain
914 new knowledge, and for implementing up-to-date methods of diagnosis and
915 treatment. A positive attitude will create the foundation for furthering knowledge,

and improving practice, and is the most important aspect to making better practitioners. Developing positive attitudes in a key factor to improving service delivery.

Doctors and CNPs were asked whether they promote oral health during their consultations. Only 13.2% of participants reported regularly promoting oral health and 41.5% reported discussing oral health on suspicion that the patient was at risk of oral disease, or following an examination. Typical limiting factors, which echoes that found in the literature, include: forgetting to include oral health promotion counseling, limited knowledge of oral disease and risk factors, insufficient time during consultations and limited access to oral health services. [5, 9]

When the participants were asked about their willingness to provide oral screening, counseling and oral health promotion, the responses were divided between "sometimes", "most of the time" and "always". These responses seem typical of a busy consulting room, where time pressures, numbers of patients to be seen, and the need to address more pressing concerns raised by the patient, may dictate how a practitioner has to work. Time constraints and competing priorities are particular stressors facing practitioners in the CHCs in Cape Town. The author has practical experience of these conditions and the direct impact on quality of healthcare provided. Some of these factors the practitioners had no control over; time restraints due to busy clinics is understandable and beyond the control of the practitioners.

Practitioners were asked about their patients' perceptions of oral health; whether from their point of view, patients feel that oral health is important to them. The responses were concerning, as an overwhelming majority (90.5%) of practitioners reported that patients believe oral health is not important or somewhat important, whereas only 7.6% of practitioners reported that their patients believe oral health is important or very important. These results are alarming, and although reported through the practitioners' lenses, not the patients, they tell us something that needs addressed. The patients visiting these CHC facilities can be correctly assumed to be

representative of the public at large and therefore offer a clear indicator of attitudes toward oral health. It calls for action. People have a responsibility to look after their health, by living healthy lifestyles, avoiding risk factors for disease, and seeking medical attention if they have concerns about their health. Yet, before they can carry that responsibility, they need to be informed and equipped with knowledge. Here lies an area where clinic staff can actively assist members of the public with oral health education, so that they can use measures to keep healthy, and know when and where to seek treatment if the need arises.

The findings from this limited Cape Town-based study are in keeping with studies done elsewhere in the world, in developed and developing countries. Medical doctors require an increased awareness of the importance of oral health, further training in recognising critical conditions in order to deliver improved oral health to the patients they serve. [5, 9] There is a need for primary care practitioners to offer early preventative interventions for oral health, early identification of oral diseases and organize appropriate referrals.[4]

A study done in India reflects the notions that whilst doctors need to identify important and potentially dangerous oral disease, they are not expected to be knowledgeable about all aspects of oral health; "It is unrealistic to expect all the medical practitioners to be conversant with all the nuances of oral health. The identification of specific areas that have important health implications for the patient, and at the same time, the conditions to which the doctors can be easily sensitized to, is therefore a priority". [12]

Limitations

The NGT method, which helped inform the questionnaire, was conducted with participants from one CHC only. Ideally, the group should have had representatives from all the health facilities included in the study, but for convenience reasons, having it onsite allowed more participants to take part, and reduced their time away from clinical work. However, the CHC concerned is similar to other CHCs in the

MDHS; all are managed by one health authority and deliver largely the same service package. The study had a small sample size and was limited to the Cape Town Metropole, an urban centre, not nationwide. There was some missing data in the results section, but this was minimal. Data was gathered from health professionals, not patients, and therefore particularly the questions relating to the patients' ideas, expectations and beliefs about their oral health, may have been better studied, had the patients themselves been involved. Local dentists were not included in the study, who would have been able to provide more information about referral systems, when to refer, and whether primary care providers are fulfilling their responsibilities in providing primary oral health care. Due to a number of constraints, this study did not attempt to verify data obtained by the questionnaire e.g. by observing primary care practice or surveying CHC users and managers; or surveying oral health and dental practitioners. Triangulating such data may strengthen the findings and / or reveal additional data to more fully describe current oral health practice in Cape Town public sector primary care.

Conclusion

It is apparent from this study that oral health is inadequately managed in the provision of primary care in the Cape Town public sector for a number of reasons including time constraints, limited knowledge of primary care clinicians and limited available oral health services. Proposed interventions to improve oral health care offered in the recommendations below should be considered by relevant authorities, while taking cognizance of competing priorities.

Recommendations for strengthening oral health care in the Cape Town MDHS

- Examine undergraduate curricula (medicine and nursing) to assess the content and quality of oral health education.
- Provide in-house training to CHC staff by local dentists and oral hygienists regarding common oral health problems, how to diagnose, manage or refer, during continuing professional development (CPD) sessions which are held regularly at the CHCs.
- Provide information sessions for staff at CHC about the local Oral Health Service in their areas, and how to go about making appointments, and therefore improving the accessibility of the Oral Health Service.
- Offer education to patients in the waiting room at the CHCs about the importance of good oral health, how to prevent oral diseases, and when to seek medical attention for oral and dental health issues.
- Improving the attitude and motivation of clinicians regarding the provision of oral health care, by informing them about the dangers of poor oral health and the importance of regular dental check-ups.

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Appendices

APPENDIX 1 Abstract

Background: Primary care practitioners are at the forefront of the health service and therefore have an opportunity to promote oral health, manage certain oral conditions, or refer appropriately to the closest dental service. In under-resourced areas, patients are more likely to present initially to a primary health care nurse or doctor, with oral or dental needs. [2]. Studies abroad have revealed that general practitioners do not always examine the oral cavity, enquire about oral health, or manage oral disease particularly well and have expressed an interest to learn more about oral health.[12, 14] A literature search for similar South African studies did not yield results. This study aims to describe current oral health care practice provided by primary care practitioners in Cape Town and to assess whether this level of service might benefit from interventions to improve the quality of care.

Methods: The Nominal Group technique (NGT) was used to identify and achieve consensus among 8 community health centre primary care practitioners regarding the main challenges to providing oral health care and offer suggestions for strengthening oral health care. This assisted the development of a questionnaire, which was then distributed to practitioners at five Community Health Centres in the Cape Town Metropole. 53 practitioners completed the questionnaire. The questionnaire aimed to assess the knowledge, attitudes and current practices of practitioners in the area of oral health.

Results: The NGT yielded valuable information to inform the questionnaire; two main topics were discussed which helped inform two sections of the 9-part questionnaire. 53 doctors and clinical nurse practitioners completed the questionnaire. Only 17% of participants reported routinely examining the oral cavity, others examined it on request of the patient or suspicion of an abnormality. A minority (13.2%) stated that they routinely promote oral health

in the consultation and reported limiting factors to include: insufficient time during consultations, forgetting to include oral health promotion, a limited knowledge of oral disease, and limited access to Oral Health Services. Suggestions for strengthening the oral health care included training clinicians in oral health, motivating clinicians to provide better oral health care, improving patient education on the importance of oral health care, and improving the integration of Primary Care services with Oral Health services. Limitations of this study include a small sample size, studying only urban community health centres in Cape Town, the absence of input from oral health experts, the absence of input from patients and missing data.

Conclusion: It is apparent from this study that oral health is neglected, for a number of reasons including time constraints, limited knowledge of treating clinicians, and limited available oral health services. Possible interventions to improve this clinical area can be posed to relevant authorities and may include examining undergraduate curricula (medicine and nursing) to assess the content and quality of oral health education, provide in-house training to CHC staff by local dentists and oral hygienists, provide information sessions for staff at CHC about the local Oral Health Service available in their areas, and offering education to patients in the waiting room on the topic of good oral health.

APPENDIX 2 Letter to participating CHC Clinical Managers

Clinical Manager
Retreat Community Health Centre
11th Avenue, Retreat, Cape Town

Dear Mr. Lemmetjies and Dr. De Sa

My name is Lorna McCrindle, and I am a Family Medicine Registrar, currently specializing through UCT.

I intend to undertake my research dissertation in the upcoming months, and would like to inform you about it, and request permission to collect my data from your institution.

The study design will be a cross-sectional questionnaire distributed to Primary Care practitioners (doctors and Clinical Nurse Practitioners) assessing their attitudes, knowledge, and current practice in managing oral health conditions.

I would like your permission to collect some of my data at your institution, possibly during a morning staff meeting, where I would explain the rationale for my study.

This study has been granted ethics approval by the HREC at UCT and the Provincial Government of the Western Cape.

Kind Regards

Lorna McCrindle
Family Medicine Registrar
UCT
Cell 083 377 3302
Supervisors: Dr. G Bresick and Dr. T Motsohi

APPENDIX 3 Letter to District Managers (Klipfontein / Mitchells Plain and Southern Substructure)

District Manager
Klipfontein / Mitchell's Plain Substructure

Dear Dr. Grammar

My name is Lorna McCrindle, and I am a Family Medicine Registrar, currently specializing through UCT.

I intend to undertake my research dissertation in the upcoming months, and would like to inform you about it, and request permission to collect my data from the community health centres in your Sub-district.

The study design will be a cross-sectional questionnaire distributed to Primary Care practitioners (doctors and Clinical Nurse Practitioners) assessing their attitudes, knowledge, and current practice in managing oral health conditions.

I would like your permission to collect some of my data at the following institutions, possibly during a morning staff meeting, where I would explain the rationale for my study.

Gugulethu CHC
Hanover Park CHC
Mitchell's Plain CHC

This study has been granted ethics approval by the HREC at UCT.

Kind Regards

Lorna McCrindle

Family Medicine Registrar

083 377 3302

Supervisors: Dr. G Bresick and Dr. T Motsohi

APPENDIX 4 Human Research Ethics Committee Approval

Attached as a PDF document.

APPENDIX 5 Human Research Ethics Committee Renewal

Attached as a PDF document

APPENDIX 6 Nominal Group Technique information sheet and consent form

Title of the research project: **Primary care practitioners' knowledge, attitudes and current practice in managing oral health conditions.**

Principal Investigator: Graham Bresick

Student Researcher: Lorna McCrindle

University of Cape Town

CONTACT NUMBER: 0833773302

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved.

Your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the Committee for Human Research at The University of Cape Town and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council

(MRC) Ethical Guidelines for Research.

What is this research study all about?

- Good oral health is an essential and integral part of good general health, although the area of oral health is often neglected or perceived to be in the realm of dentists. The distribution, prevalence, and impact of oral disease in South Africa, and the world, suggest that it is a field where primary care doctors and nurses have the potential to play a significant role in the management of oral and dental disease.

- This research study aims to evaluate the participants' knowledge, attitudes and clinical management of oral diseases. The participants will be medical officers and registered professional nurses.
- The study will be conducted at five different Community Health Centres across the Cape Town Metropole, including Gugulethu, Hanover Park, Mitchell's Plain, Retreat and Vanguard Community Health Centres.
- You have been asked to participate in a focus group (6-8 participants) at UCT Medical School, to discuss in a structured format, issues related to delivering Oral Healthcare at the Community Health Centres.
- The group discussion will use the Nominal Group Technique Method. The discussion points will be recorded by writing down key points on a flipchart. The discussion will not be audiotaped.

Why have you been invited to participate?

- As a registered professional nurse or medical officer currently working in a primary care setting, your input is valuable to determine the current knowledge, clinical practice and in-service training in the realm of oral and dental health.

What will your responsibilities be?

- You have been asked to participate in a focus group (6-8 participants) at UCT Medical School, to discuss in a structured format, issues related to

delivering Oral Healthcare at the Community Health Centres. The group discussion will use the Nominal Group Technique Method. The discussion points will be recorded by writing down key points on a flipchart.

- The information generated will be used to assist the researcher in creating a questionnaire, which will be distributed to primary care practitioners at Community Health Centres in an attempt to understand the current situation regarding the delivery of oral healthcare in these centres.

Will you benefit from taking part in this research?

- The data generated through your participation in this research project will benefit both staff and patients as it might lead to change in the way oral health is taught to undergraduates, and contribute to the continuing medical education programs for primary care practitioners.

Are there any risks involved in your taking part in this research?

- No risks have been identified by means of your participation in this project.
- Your participation in this research project is entirely voluntary and if you select not to participate, you will not be penalised in any way.

Will you be paid to take part in this study and are there any costs involved?

- No, you will not be paid to take part in the study. If you choose to take part, there will be no costs to you.

Questions about your rights as a study participant, comments or complaints about the study may also be presented to the University of Cape Town's Human Research Ethics Committee.

Tel: 021 406 6338 or 0800 212 123 (toll-free from a landline telephone)

Declaration by participant

By signing below, I ..... agree to take part in a research study entitled *Primary care practitioners' knowledge, attitudes and current practice in managing oral health conditions.*

- I declare that: I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (place) ..... On (date)..... 2016.

Signature of participant …… Signature of witness……..

APPENDIX 7 Nominal Group Technique Method

The group will be run by the principal investigator and one of her supervisors, who have experience in using the nominal group technique method. The meeting room will be set up for six to eight participants with chairs and desks in a "U" shape with a flip chart at the open end of the "U". The focus group is conducted in the format described below. The language used will be English.

1. Introduction – aim of the exercise

The objectives of the session and the process of the NGT are explained, with respect for others as well as privacy and confidentiality emphasised.

2. Presentation of the question

The questions to be addressed ("What are some of the challenges facing primary care practitioners regarding providing oral healthcare?" and "How can oral healthcare be strengthened in the Community Health Centres?") are handed to the participants - each on an otherwise blank page for the responses to be recorded. The questions are explained to ensure that it is clearly understood.

3. The silent phase

Each participant is asked to write down on each sheet of paper his/her own responses to the questions. Participants are encouraged to record as many responses as possible.

4. Item generation

Each participant in turn is asked to give one response to the question while the facilitator records the responses on a flip chart. This is continued in round robin fashion until all responses are given.

5. Item clarification

The meaning of all the items put forward is clarified to ensure a common understanding. There will be limited discussion on items that overlap or are similar.

6. Prioritization

Each participant then ranks the five items most important to him/her on paper without discussion in the order one (most important) to five (least important).

7. Final voting of group

The ranked choices of each participant are named by going round the group. The scribe records these on the flip chart.

8. Debriefing on nominal group technique procedure

Participants are asked to reflect briefly on the exercise and given the opportunity to seek any final clarification.

APPENDIX 8 Study information and consent for questionnaire

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

Title of the research project: **Primary care practitioners' knowledge, attitudes and current practice in managing oral health conditions.**

Principal Investigator: Graham Bresick

Student Researcher: Lorna McCrindle

University of Cape Town

CONTACT NUMBER: 0833773302

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved.

Your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the Committee for Human Research at The University of Cape Town and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- Good oral health is an essential and integral part of good general health, although the area of oral health is often neglected or perceived to be in

the realm of dentists. The distribution, prevalence and impact of oral disease in South Africa, and the world, suggest that it is a field where primary care doctors and nurses have the potential to play a significant role in the management of oral and dental disease.

- This research study aims to evaluate participants' knowledge, attitudes and clinical management of oral diseases.
- The study will be conducted at five different Community Health Centres across the Cape Town Metropole, including Gugulethu, Hanover Park, Mitchell's Plain, Retreat and Vanguard Community Health Centres.
- You will be given a consent form to complete before your participation in the research project. Participation is entirely voluntary and anonymous. On completion of consent form you will place the consent form in a sealed envelope and slot it into a special box provided by the researcher. No names or hospital names are attached to this questionnaire; the answers are in the form of tick boxes, and there are a few opportunities to add some written responses. The questionnaire will take approximately 20 minutes to complete. Once the questionnaire has been completed, it will be placed in a sealed envelope and placed into a second box marked questionnaires also provided by the researcher. All questionnaires will be completed in the clinic where you are working. The researcher will deliver and collect all the consent forms and questionnaires in person.

Why have you been invited to participate?

- As a registered professional nurse or medical officer currently working in a primary care setting, your input is valuable to determine the current knowledge, clinical practice and in-service training in the realm of oral and dental health.

What will your responsibilities be?

- You will be requested to complete a consent form and place it in a sealed envelope into a box marked "Consent forms". After completion of consent,

you will be given a questionnaire to be completed and placed in a sealed envelope into a box marked “Questionnaires”. There will be no names affixed to the questionnaire; therefore the study will be done anonymously. There is no way the researcher will be able to identify the participants by either hospital or individual names.

Will you benefit from taking part in this research?

- The data generated through your participation in this research project will benefit both staff and patients as it might lead to change in the way oral health is taught to undergraduates, and contribute to the continuing medical education programs for primary care practitioners.

Are there any risks involved in your taking part in this research?

- No risks have been identified by means of your participation in this project.
- Your participation in this research project is entirely voluntary and if you select not to participate, you will not be penalised in any way.

Will you be paid to take part in this study and are there any costs involved?

- No, you will not be paid to take part in the study. If you choose to take part, there will be no costs to you.

Questions about your rights as a study participant, comments or complaints about the study may also be presented to the University of Cape Town’s Human Research Ethics Committee.
Tel: 021 406 6338 or 0800 212 123 (toll-free from a landline telephone)

Declaration by participant

By signing below, I ..... agree to take part in a research study entitled *Primary care practitioners' knowledge, attitudes and current practice in managing oral health conditions.*

- I declare that: I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (place) ..... On (date)..... 2016.

Signature of participant ……

Signature of witness……..

Declaration by investigator

I (name) ..... declare that:

·I explained the information in this document to .....

·I encouraged him/her to ask questions and took adequate time to answer them.

·I am satisfied that he/she adequately understands all aspects of the research, as discussed above.

Signed at (place) ..... on (date) ..... 2016.

Signature of investigator……..

Signature of witness……..

APPENDIX 9 Questionnaire

STUDY NUMBER:

Oral Health Questionnaire

1. Background demographic information

a) Age _____

b) Highest qualification _____

c) Please indicate: Doctor _____ CNP _____

d) Type of practice e.g. clinic / CHC / private practice _____

e) Years in practice _____

f) Average patient numbers per day _____

g) Nearest dentist and / or oral hygienist (and indicate whether private or government practitioner)

_____

_____

2. What are some of the challenges facing primary care practitioners regarding providing oral health care?

a) Staff have inadequate knowledge of and clinical skills in managing oral health conditions

Strongly disagree	Disagree	Indifferent	Agree	Strongly agree

Strongly disagree	Disagree	Indifferent	Agree	Strongly agree

b) Poor communication between and integration of oral health service with primary care service

Strongly disagree	Disagree	Indifferent	Agree	Strongly agree

c) Patient ideas, expectation, beliefs about oral health

3. Oral Health Education and Training

a) Approximately, how much oral/ dental health training did you receive as an undergraduate?

None	1 week	2 -4 weeks	1 month	>1 month

b) As a postgraduate, do you continue to receive training in Oral Health?

CPD seminars	Point-of-care Online tools e.g. *Uptodate*	Regular reading of medical journals	Mostly through practice experience and consulting colleagues	Other (give example)

Yes / No

c) If Yes, what form does this take? Please tick (You can tick more than one option).

4. Current Oral Health-related knowledge and practice

Yes, routinely	Yes, on request	Yes, on suspicion	Occasionally	Never

a) How often do you examine the oral cavity? (Includes examining teeth, tongue, gums, palates)

b) How often do you encounter these oral conditions? Please tick.

	Daily	Twice a week	Weekly	Monthly	Never
Dental caries					
Gingivitis/ periodontal disease					
Mouth Ulcers					
Suspected oral cancers					
Oral malodour (halitosis)					
Dry mouth (xerostomia)					
Oral trauma					

c) How often do you promote oral health or discuss preventing oral disease in your consultations generally? Please tick.

Yes, routinely	Yes, on request	Yes, on suspicion	Occasionally	Never

d) What are the limiting factors? Please tick. (You can tick more than one option)

Forget to include oral health promotion counselling	Limited knowledge of oral disease and risk factors	Insufficient time during consultations	Limited access to Oral Health Services	Other, please indicate

e) Oral diseases have risk factors. Please tick risk factors for oral disease.

Unhealthy diet	Harmful alcohol use	Chewing gum	Tobacco smoking	Poor oral hygiene

f) Oral disease is often linked to systemic disease.

Please match the following conditions with the associated systemic disease. Each item has one answer that is most correct.

A. Oral hairy leukoplakia	1. Diabetes Mellitus	A -
B. Untreated dental infection	2. Gastro-oesphageal reflux	B -
C. Jaw pain	3. Cavernous sinus thrombosis	C -
D. Angular chelitis	4. Infective Endocarditis	D -
E. Oral candidiasis	5. Iron deficiency	E -
F. Periodontitis	6. Multiple myeloma	F -
G. Enamel erosion	7. HIV	G -

5. <u>Importance of Oral Health</u>

a) As a primary care practitioner, how important is it to you to address the oral and dental health needs of your patients?

Not important	Somewhat important	Important	Very important

b) In your opinion, how do patients perceive the importance of oral health?

Not important	Somewhat important	Important	Very important

c) Are you willing to provide health promotion and screening for oral health matters?

Never	Sometimes	Not sure	Most of the time	Always

6. Confidence in managing oral health problems

a) Please rate your confidence in recognising the following oral conditions.

(Rating 1-5 where **1** *not confident at all*, **2** *some confidence but very limited*, **3** *fair amount of confidence butwould consult a colleague or reference*, **4** *mostly confident* , **5** *very confident*)

Dental caries	Gingivitis / Periodontal disease	Mouth ulcers	Suspected oral cancers	Oral malodour (halitosis)	Oral trauma from injuries	Xerostomia (dry mouth)

b) Please rate your confidence in initiating a management plan for these conditions.

(Rating 1-5 where **1** *not confident at all*, **2** *some confidence but very limited*, **3** *fair amount of confidence but would consult a colleague or reference*, **4** *mostly confident* , **5** *very confident*)

Dental caries	Gingivitis / Periodontal disease	Mouth ulcers	Suspected oral cancers	Oral malodour (halitosis)	Oral trauma from injuries	Xerostomia (dry mouth)

Please answer:

c) I feel confident to identify and diagnose any patient with a common oral health condition

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

d) I feel knowledgeable enough to initiate treatment, follow patients up, and refer appropriately, any patient with an oral health condition.

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

7. Oral Health Services

Please answer

a) The local Oral Health Service (e.g. dentist and / or oral hygienist) is accessible to my patients.

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

b) If no, please tick possible reasons

Oral health services not on same premises as clinic	Limited appointments available (and long waiting times)	Unclear referral pathways	Oral Health Services and Primary Service not integrated	Other, please indicate

8. How can oral health care be strengthened at the CHCs?

a) Training clinicians in Oral Health conditions

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

b) Improved attitude and motivation of clinicians to provide oral health care

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

c) Improving patient education on the importance of oral health

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

d) Improving the accessibility of Oral Health Services

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

e) Integration of Primary Care Services and Oral Health Service

Strongly disagree	Disagree	Not sure	Agree	Strongly agree

9. <u>Further learning</u>

Please rate the top 3 preferred Continuing Medical Education (CME) methods for you?
(rank 1, 2, and 3 in the boxes below)

Professional Guidelines	CME courses	Posters and pamphlets	In-house training (by a dentist)	Online resources (self-directed)	Other, please indicate

Appendix 10 Summary statistics

Document available from student researcher. (Word ***Oral Health results tables and graphs 1.0***)