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I trust that you are all well and are feverishly engaged in the promotion of oral health. What a dynamic and exciting time we are living in. So much has happened since the last edition of the OHASA Journal, it is difficult to keep up! But, it is said that in busy times, it is those who keep their heads and continue learning, who prosper.

Beware the sweet tooth! Of course, we all know that but it appears that the Minister of Finance has finally agreed with that statement too. In his budget speech in parliament earlier this year, Minister Pravin Gordhan announced a sugar tax, to be implemented on the 1st of April 2017. This is definitely not an April Fool’s joke.

Much has been said and written about the sugar tax. Arguments for and against the tax have already been postulated. OHASA’s position has been clarified in a statement which you, the members, have to endorse via an online poll. Please add your voice and let OHASA play an active role in improving South Africans’ oral health. You can have your say at www.ohasa.co.za under ‘Knowledge share’.

Within this issue there are published articles on the crises of dental caries – read and be distressed. For now, I do not wish to explore the merits and demerits of the proposed tax. Instead, I wish to look at the rationale behind the tax. Studies have shown that South Africa is the most obese nation in sub-Saharan Africa. Literature indicates that 70% of women and 40% of men are obese in South Africa. Obesity contributes to diabetes, heart disease and stroke. In 2014, diabetes was the second highest cause of death in South Africa. These figures are cause for alarm.

As professionals in oral healthcare, we are rightly concerned with the effect of sugar on tooth morbidity, particularly in the Western Cape, where dental caries is at a staggering 80% among children in the province.

However, I contend that as hygienists and related professions, we should not only look at the wellbeing of the dental health of a patient. While that may be our primary function, we need to adopt an integrated, interdisciplinary approach. By this I mean that we are to engage our patients about their general health and to provide advice about their wellbeing, not as a specialist in the respective fields per se, but as someone who understands what wellbeing actually is.

For us to effectively do this, we need to empower ourselves. We do this by reading and studying relevant literature and attending workshops and seminars etc. The more we know, the more we are able to assist those who sit in our dental chairs.

It is imperative that we, as health professionals, add our shoulders to the wheel that will drive the citizens of our country towards a better lifestyle, and in so doing, to better health. The proliferation of health and fitness clubs, and the number of people in all areas who take up walking as an exercise, are indications that people are increasingly conscious of their health. Yet, even more must be done. Government’s proposal to place a tax on sugary drinks is aimed at curbing the consumption of sugar. The resultant revenue from the sugar tax is estimated to be close to R7 billion. This could be used to subsidise the price of fruit and vegetables, making these more affordable and leading to healthier diets. We need to be part of this drive to better health so that the scourge of obesity and its cost to our country may be curtailed. It is not the duty of government alone. All health sectors have a role to play, and oral hygienists cannot be an exception. To avoid actively getting involved and making our voices heard, is to shirk our responsibility towards our patients.

Remember, we do not treat teeth, we treat human beings.

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FROM THE EDITOR’S DESK

Rugshana Cader
Managing editor
Dear Members and Colleagues

Welcome to the second quarter of the year. For the rest of the year I would like to focus my attention on urging each and every oral hygiene practitioner who is not a member of OHASA to become one. We need to remember that we have strength in numbers.

In saying so, student membership should be encouraged by the lecturers at the universities, this would then enable the future oral hygienists to actively participate and become part of our family. Student membership is voluntary and free of charge. I would like to strongly emphasise the importance of becoming a lifelong member of the Association. At university, students are focused on getting through and graduating in order to get their career started. Once you have achieved this, you need to decide whether you should join OHASA. This is of course voluntary.

I would like to share a personal story to illustrate this: I was contacted by a student who wanted to enquire about an OHASA student membership (of his own accord). He then proceeded to explain the importance of OHASA to his fellow classmates which led to him registering some of these classmates. I think we can all take a page out of his book. I think that we need to watch this student closely as he is a candidate for future leadership in our association.

Are the benefits of an OHASA membership worth an annual fee? Any current member would answer yes, but it is not about the benefits that you receive as an individual, it is about the benefits accrued to the profession of oral hygiene. No one is fighting for our profession, not the dentists, the patients or the general public, only the actual OHASA members. Our Association is the only one fighting for our rights and benefits. Non-members only want to focus on their clinical work, but unfortunately we need oral hygienists who are willing to fight for the profession as a whole, and that is where the Association comes in. We need resources to enable us to do this. By more people joining the Association, we are able to fund these projects. The more members we have, the better the fight will be.

Many of you might be thinking “I don’t agree with everything the Association is doing” or ‘I don’t like the Branch committee members so why should I support them’. No person can like everybody or everything that the Association does. However, that should not stop you.

If you are no longer a member or never have been, I strongly urge you to reconsider, to either renew your membership or to join. We need every practitioner to keep our profession moving forward. Ex Unitas Vires – out of unity comes strength. We cannot do it alone.

A big thank you to our traders that support us so faithfully, you are an important cog in the wheel.

God Bless

Stella

●
I belong to the second generation this article is about, the first being my parents. They belonged to the generation where it was not fashionable to have bad teeth – rather false teeth (fashionably called dentures) – and you were expected to dress properly, especially on Sundays when you went to church! What would people say if you were in the Ouderling suit – with waist coat and all – but you dared not open your mouth! No white fillings in those days, gold, yes, but that was expensive and only for the very rich... So out came the teeth and in went the falsies ... With a sliver of gold to make them look natural!

The next generation, mine! Parents didn’t want to put their children through the same trauma they went through (many of them lost their teeth at an early age – even before they were 20). So the agreement became: Keep your teeth as long as possible, have them filled, but if it is a baby tooth giving you trouble... have it out! Never mind drifting and resulting crowding. Permanents were filled if your parents could afford it. You only had a permanent tooth out when it gave you too much trouble, but out they came and the overworked dentist was just too happy to help keep you free of pain and listened to the demands of your parents.

Then the next generation came along, some of you may belong to that as well... and I was privileged to have been there when the first hygienists arrived at Tuks... The excitement of seeing this group of beautiful ladies – especially for a group of 30 young men with not a single female in the class! We gladly ignored the orange uniforms.

A new movement started – Dr Leon Taljaard’s’ dream of prevention became true – a man who practised preventive dentistry in a Northern Cape town in the deep platteland when most of his colleagues were practising traditional dentistry. I recall his sadness when he told me that the dentist who took over his practice had a field day making dentures for many of those patients who he so carefully helped to keep their teeth.

The fourth and fifth generation are now reaping the fruits of your discipline’s endeavours. Where it was a rare occurrence to see a caries-free mouth in those days and we would call the whole group to witness this miracle, it has become common for me to see five or more caries-free mouths in succession in my orthodontic practice. And what great satisfaction there is in aligning these teeth to near perfection (remember, there are no absolutes in this universe) and see the smiles of delight from both parents and patients, knowing you have changed somebody’s life for the better, giving them confidence to face the world.

Your tireless work and dedication to detail have made this possible and I salute you... and you should do the same tonight when you look in the mirror!

Let us hope that history does not repeat itself and that you will be able to continue to deliver this invaluable service to mankind.

I thank you!

Piet Botha

*Prof. Taljaard; Past Dean, MEDUNSA
ABSTRACT
Good nutrition is essential for good health and the development and integrity of the oral cavity. Oral health is integral to general health and essential to wellbeing. Dental caries is the most common oral disease in children under five years of age, and although preventable, still affects many children, particularly those from disadvantaged socio-economic backgrounds. High consumption levels of sugary food and drinks have been implicated as an important dietary cause of obesity, diabetes, coronary heart disease and dental caries. The global obesity epidemic has attracted policymakers’ attention to the relationship between diets that are rich in added sugars (particularly glucose, sucrose and high-fructose corn syrup) and obesity, diabetes, metabolic syndrome and cardiovascular disease risk factors.

The aim of this paper is to review the literature and summarise the evidence that relates to diet and nutrition as a cause of oral diseases, such as dental caries and early childhood caries. The Common Risk Factor Approach will be described as a way in which health promotion and preventive initiatives that advance oral health and nutrition in children under five years of age can be achieved. Recommendations are provided on public health strategies with regard to nutrition education, food policies, diet counselling and the promotion of adequate fluoride exposure via appropriate vehicles.

Keywords: food-based dietary guidelines, FBGDs, oral health, nutrition in children, five years

INTRODUCTION
Good nutrition is essential for good health and the development and integrity of the oral cavity. Oral health is integral to general health and essential to wellbeing. A nutritious diet that protects against other major health conditions, such as obesity, may also reduce dental caries. Oral health and noncommunicable diseases share risk factors, such as diet, tobacco and alcohol, and have high co-morbidity (cancer and diabetes). The World Health Organization (WHO) recommends that member states focus their policies on the determinants of health, of which diet is a main influential factor. Therefore, policies that aim to promote health should include the provision of safe, adequate and affordable food for the whole population.

The prevalence of dental caries is high, but has received insufficient attention because it is not a life-threatening condition. The most recent National Children’s Oral Health Survey (1999–2002) showed that dental caries was more severe in primary than permanent dentition. The Western Cape province had the highest prevalence of dental caries in all age groups. Based on weighted national means, the Unmet Treatment Needs index was 92% for children aged 4–5 years. The report concluded that “the prevention of early childhood caries should be an important priority for provinces”, and that “every effort should be made to encourage and promote positive oral health habits”.

Dental caries is the most common oral disease in children under five years of age, and although preventable, still affects many children, particularly those from disadvantaged socio-economic backgrounds. The presence of dental caries greatly impacts on the quality of life of a child and his or her family because of pain and discomfort, the disruption of eating patterns, sleepless nights and an increase in the risk of chronic infection. In addition, high consumption levels of sugary food and drinks have been implicated as an important dietary cause of obesity, diabetes, coronary heart disease and dental caries. The global obesity epidemic has attracted policymakers’ attention to the relationship between diets that are rich in added sugars (particularly glucose, sucrose and high-fructose corn syrup) and obesity, diabetes, metabolic syndrome and cardiovascular disease risk factors.

THE NUTRITION TRANSITION
Global economic growth has given rise to what has been termed the “nutrition transition.” As incomes have risen and populations became more urban, there has been a shift in diet from complex carbohydrates, fibre, whole grains, vegetables and fruit to a Western diet that has a high proportion of fat, salt and added sugar. The progression through the nutrition transition in many low income countries where Western diets have been adopted has resulted in increasing rates of caries levels, weight gain, obesity and related diseases. The cost of food poses a significant barrier to many consumers trying to balance good nutrition with affordability, and consequently diets consist mainly of cheap, highly processed food and drink (soft drinks and fruit juice), sugar, sweets and ready-to-eat cereals. Over the past 50 years, sugar consumption has tripled worldwide. It is important to distinguish between sugar that is naturally present in vegetables, fruit, grains and milk for oral health and general health purposes (as evidence shows that these foods are not associated with dental caries), and sugar that is added. Published research has examined the association between key risk factors and the development of dental caries cross-sectionally and longitudinally. However, little is known of the vertical interaction in the paradigm between molecular impact and psychosocial impact in developing countries, and particularly within and between ethnically diverse or disadvantaged, impoverished populations.

SUGAR, SUGAR-SWEETENED BEVERAGES, HEALTH AND ORAL HEALTH IN CHILDREN
Literature from a growing body of epidemiological evidence, including human observational and intervention studies, animal experiments and experimental laboratory studies, has shown that
sugar is the principal cause of dental caries, and is a threat to oral health from infancy into old age. There is no good evidence, with the exception of lactose, that the cariogenicity of the different sugars, such as sucrose, glucose and fructose, varies. Population studies have shown that there is a low risk of developing dental caries from consuming starch-rich staple food, without the addition of sugar. Starchy staple food is of little importance in the development of caries. Cooked staple starchy food, such as rice, potatoes and bread, is of low cariogenicity in humans. The cariogenicity of uncooked starch is very low. In general, people who consume high-starch, low-sugar diets experience caries less often than those who consume low-starch, high-sugar diets.

In addition to the harmful effects on the teeth, experimental, epidemiological and intervention studies have shown that sugar consumption and, in particular fructose, induces all the diseases associated with metabolic syndrome, such as obesity, hypertension, high triglyceride levels, insulin resistance and diabetes from increased liver glucose production. Lustig, Schmidt and Brindis consider that fructose exerts a toxic effect on the liver, similar to that of alcohol. The harmful effect of added sugars, such as high-fructose corn syrup and sucrose, has led to requests to regulate and tax products with high levels of those sugars. The effect of an excess intake of sugar on nutrient adequacy is of concern. Soft drinks, sugar and sweets are more likely to have a negative impact on diet quality. Johnson et al. showed a direct relationship between an energy-dense, low-fibre, high-fat dietary pattern and increased obesity in childhood in a prospective study.

Experimental, epidemiological and intervention studies have suggested that sucrose and other free sugars contribute to the development of chronic diseases, including the global epidemic of weight gain and obesity. The term ‘free sugars’ includes sugar added by manufacturers, cooks or consumers, as well as sugar that is present in fruit juices, honey and syrups.) Consensus international and national guidelines already exist on the need to reduce sugar consumption. Governments should develop strategies to implement the recommendations of the report of the joint WHO/Food and Agricultural Organization of the United Nations expert consultation on diet and the prevention of chronic diseases. They should also support food-based dietary guidelines (FBDGs).

Sugar-sweetened beverages contain added caloric sweeteners, such as sucrose, high-fructose corn syrup or fruit juice concentrates. They include soft drinks, carbonated soft drinks, fruit juices, sports drinks, energy and vitamin drinks, sweetened iced tea, cordials, squashes and lemonade, and contribute from 35% to more than 50% to the total intake of added sugar in some children’s diets. Dental erosion is the chemical dissolution of dental hard tissue by extrinsic and intrinsic acid without bacterial involvement, and if not controlled, can result in severe tooth surface loss, tooth sensitivity and poor aesthetics. Dental erosion is commonly associated with the frequent intake of sugar-sweetened beverages, which weakens the integrity of the tooth and increases caries risk.

In experimental animals, and in humans, caries development occurs in the presence of sugar, fluoride and bacteria. Fluoride in food or toothpaste is an essential component of a caries-prevention programme. Many countries are undergoing nutritional transitions and may also use fluoride varnishes, which are also useful. Improving access to affordable fluoride toothpaste is an essential component of a caries-prevention programme. Many countries are undergoing nutritional transitions and may still not have adequate exposure to fluoride. There is a call for the promotion of fluoride via appropriate vehicles, like affordable toothpaste, water, salt and milk.

Sugar should not be added to food or drink that is given to babies, as this can lead to tooth decay when the first teeth come through. Governments should set stringent codes of practice on the sugar content of commercial baby food. Paediatric medicine and medicine that is sold over the counter should not contain sugar. Health professionals should always check if a medicine contains sugar and prescribe or offer sugar-free alternatives, wherever possible. In addition, government control on advertising, including on the Internet, of sugar-rich items directed at children, needs to be implemented. Food manufacturers could produce low-sugar or sugar-free alternatives to products that are rich in free sugars, including baby drinks.

The role of fluoride in protecting teeth against dental caries is well established, and optimal exposure to fluoride remains the cornerstone of caries prevention. Exposure to fluoride alters the sugar-caries relationship. When there is good exposure to fluoride, sugar consumption is a moderate risk factor for caries. With widespread use of fluoride, sugar consumption still has a role to play in the prevention of caries, but this role is not as strong as it is without exposure to fluoride.

At a biological level, fluoride promotes the remineralisation and inhibits the demineralisation of the tooth structure. The sustained presence of low concentrations of ionic fluoride in the oral environment enhances remineralisation and has a bacteriostatic effect. The twice-daily use of a pea-sized amount of fluoridated toothpaste is an important preventive practice to reduce dental caries and, if available, fluoride varnishes are also useful. Improving access to affordable fluoride toothpaste is an essential component of a caries-prevention programme. Many countries are undergoing nutritional transitions and may not have adequate exposure to fluoride. There is a call for the promotion of fluoride via appropriate vehicles, like affordable toothpaste, water, salt and milk.

Water fluoridation, when feasible and culturally acceptable, could be considered as a public health option, particularly in populations with high levels of caries.
EARLY CHILDHOOD CARIES
Early childhood caries is a complex, multifactorial, but preventable dental disease in infants and preschool children. It is a public health concern because of widespread and increasing prevalence, inequitable distribution in preschool children and its negative consequences on children, their families and public health programmes. Early childhood caries affects a disproportionate number of children from low socio-economic groups and ethnic minorities. Epidemiological data have shown consistent patterns of inequalities in early childhood caries that is determined by socio-economic status. Milnes reported that, while the prevalence rate of early childhood caries varied from 1–12% in developed countries, in developing countries and within disadvantaged populations of developed countries (immigrants and ethnic minorities), the prevalence rate was as high as 70%. Many barriers to obtaining dental care exist for young children in many parts of the world, but there appears to be a clear stepwise social gradient, replicating the pattern found in other childhood conditions. In addition, different cultural beliefs about health, diet, disease, hygiene and the importance of primary teeth may create additional oral health risk factors through dietary and feeding practices and child-rearing habits.

As described by Fass, the presentation of a child suffering from rampant caries is a shocking experience. He published the first comprehensive description of caries in infants, which he termed "nursing bottle mouth." The clinical appearance of early childhood caries includes the presence of one or more decayed (noncavitated or cavitated lesions), missing (due to caries) or filled teeth in any primary tooth in a child 71 months or younger. Noncavitated lesions appear as smooth, dull, white or brown spots on the primary maxillary (upper) teeth. Cavitated lesions appear as brownish, rough breaks, normally on the smooth enamel surfaces. This is indicative of severe early childhood caries in a child who is younger than three years of age.

Diet and nutrition have a direct influence on the progression of tooth decay. It is widely recognised that dental caries is a preventable infectious disease that is strongly modified by diet. The caries process is influenced by the susceptibility of the tooth, the bacterial profile, the quantity and quality of saliva and the presence of fluoride, which promotes remineralisation and inhibits demineralisation of the tooth enamel. Prevention, intervention and reversal of dental caries can be enhanced by either reducing the pathological factors or enhancing the protective factors. However, in young children, bacterial flora and host defence systems are still being developed, and carers need to negotiate the dietary transition through breast and bottle feeding, first solids and children’s food preferences. It has been reported that there may be unique risk factors for dental caries in infants and young children. Early childhood caries is preventable and, with proper oral hygiene and regular exposure to fluoride, the risk of caries can be reduced. Contributing factors that predispose children to early childhood caries include prolonged and night-time bottle feeding of milk and sweetened juice by infants and toddlers, nocturnal breastfeeding after 12 months of age, linear hypoplasia of the primary teeth associated with malnutrition, and the prolonged use of a pacifier covered with honey, sugar or other sweetened foods. The risk of developing early childhood caries increases in a very young child whose older siblings have a history of dental caries.

THE IMPLICATIONS OF EARLY CHILDHOOD CARIES
Early childhood caries is characterised by a high prevalence, high impact and high resource requirements. If left untreated, it results in pain, bacteriemia, reduced growth and development, speech disorders and premature tooth loss, with its sequelae of compromised chewing, loss of self-esteem and harm to the permanent dentition. Its seriousness and societal costs continue to be a significant public health issue, especially in racial or ethnic minorities. There is considerable evidence that children who experience early childhood caries continue to be at high risk of new lesions as they grow older, both to the primary and permanent dentitions. Treatment of early childhood caries is expensive and time consuming, often requiring extensive restorative treatment and extraction of teeth at an early age.

Early childhood caries has also been implicated in contributing to other health problems. Children with early childhood caries were shown to weigh less than 80% of their ideal weight, and to be in the lowest tenth percentile for weight. The mean age of ‘low-weight’ patients with early childhood caries was significantly greater than that of patients at, or above, their ideal weight, indicating that the progression of early childhood caries may affect growth adversely. In addition, the quality of life of the child suffers. Pain or infections associated with early childhood caries may make it difficult for the child to eat. Alternatively, poor nutritional practices may be responsible for reduced weight and caries. Severe dental caries affects nutrition, growth and weight gain. Intervention studies have shown that children with severe caries weighed less than their matched controls, and that after treatment of decayed teeth, there was more rapid weight gain. The association between dental caries and growth is thought to be because dental pain restricts dietary intake. The chronic inflammation caused by caries is also known to suppress growth through a metabolic pathway, and to reduce haemoglobin as a result of depressed erythrocyte production.

BREASTFEEDING AND EARLY CHILDHOOD CARIES
The evidence that suggests that prolonged and nocturnal breastfeeding is associated with an increased risk of early childhood caries is limited and inconsistent, and is based primarily on cross-sectional studies that rely on the retrospective recall of infant feeding practices. Furthermore, these studies and subsequent longitudinal studies have failed to adequately measure and control for confounding variables in their study design, such as dental hygiene practices, fluoride usage and dietary factors, including the intake of sugar-based food or beverages, and noncariogenic food, such as milk and dairy products. Scientific evidence of the beneficial effects of breastfeeding on general health is well accepted. Epidemiological studies have also shown minimal adverse effects from breastfeeding on caries development.

THE PREVENTION OF EARLY CHILDHOOD CARIES
Any healthcare worker who cares for children under five years of age is in an ideal position to assist in the prevention of early childhood caries. The education of mothers or caregivers in the prenatal period, prior to the first tooth eruption and following eruption of the first tooth, is critical. The goal of the educational initiative is to increase the knowledge of the mother of causes and risk factors associated with early childhood caries, encourage breastfeeding, promote good oral hygiene and improve the dietary habits of mothers through positive role modelling. It is assumed that an increase in the knowledge of mothers or caregivers will influence their self-care habits and dietary practices and, in turn, improve the dietary and oral hygiene habits of infants, leading to the prevention of early childhood caries. The primary emphasis of diet counselling should be on sugar intake frequency. The combination of infant feeding practices and repeated consumption of fermentable carbohydrates, such as sweetened beverages or highly processed starchy or sugary
foods, increases caries risk. Bottle-fed infants should not be put to sleep with the bottle. Weaning from the bottle should be encouraged at 12–14 months of age. Established dietary recommendations emphasise that the selection of a variety of foods, a low intake of fat, saturated fat and cholesterol, and moderate use of salt and sodium reduce the risk of chronic disease. However, dental diseases, especially caries, are rarely addressed. Dietary advice that is given for general development and wellbeing needs to be integrated with oral health counselling. Nutrition education and counselling for the purposes of reducing caries in young children aims to teach parents the importance of reducing high-frequency exposure to obvious and hidden sugar. A reduction in sugar, in line with the WHO recommendations, promotes good oral health and also has a significant impact on reducing levels of overweight and obesity in children. Together with nutritional factors, a comprehensive approach and a paradigm shift in preventive approaches is urgently needed to prevent dental caries in preschool children. Changing eating and drinking patterns requires a coordinated strategic approach, which addresses underlying influences on food consumption and creates a more supportive environment promoting healthier nutrition. Food policies and health promotion initiatives need to adopt a range of complementary intervention strategies. A coalition of partners working together is required to achieve a common goal. In addition, efforts should focus on ensuring that there is a wide range of processed baby food and medicine for children that is sugar-free. Policy makers need to make healthy choices the easier choices.

Appropriate advice which targets mother from disadvantaged backgrounds on infant feeding, dietary practices and oral hygiene measures should be a major focus. Furthermore, health professionals require nutrition training so that they are able to offer evidence-based nutritional preventive support in primary healthcare and other community settings, particularly at strategic times in the life course, such as during pregnancy. Infant feeding policies which promote exclusive breastfeeding and appropriate complementary food choices are critically important. The South African paediatric FBDGs include specific advice pertaining to oral health. The following FBDGs have been proposed: “Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat and salty snacks” to children aged 6–36 months; and “Use sugar and food and drinks high in sugar sparingly” in children aged 3–5 years. The paediatric FBDGs still need to be field tested to ensure accurate communication of the oral health message.

CONCLUSION

This paper has reviewed the literature and summarised the evidence that shows that diet and nutrition are associated with oral diseases such as dental caries, early childhood caries and dental erosion in children under five years of age. Evidence-based strategies to prevent and improve oral health and nutrition need to be integrated into policies, programmes and practices that reduce the overall caries burden. In addition, partnerships between local, national and international governmental structures and the private sector need to be forged at all levels. A paradigm shift in health promotion and preventive initiatives is needed to promote oral health in children under five years of age, and to alleviate the barriers (physical, cultural, racial, ethnic, social, educational, environmental and those pertaining to healthcare) that prevent optimal oral health from being achieved.

Correspondence to: Sudeshni Naidoo, e-mail: suenaidoo@uwc.ac.za

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DENTAL CARIES STATUS
IN SIX-YEAR-OLD CHILDREN AT HEALTH PROMOTING SCHOOLS IN KWAZULU-NATAL, SOUTH AFRICA

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S Singh, PhD (Dental Public Health). Academic Leader Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal.
Published in: SADJ October 2015, Vol 70 no 9 p396–p401 (Permission was granted to reprint this article).

ABSTRACT
The 2003 National Children’s Oral Health Survey indicated that 35.2% of six-year-olds in KwaZulu-Natal were caries free and only 40% had received dental treatment. The aim of the present study, almost ten years later, was to investigate these data in six-year-old children at health promoting schools in KwaZulu-Natal.

Methods: A quantitative, epidemiological explorative study was conducted on a sample of 345 Grade 1 learners attending 23 schools, selected by statistical sampling from the eleven districts of KwaZulu-Natal. The World Health Organisation DMFT Tool (1994) was used to record the data.

Results: The caries rate of the sample was 73% (ie. 27% caries free) and the mean dmft was 3.65. The average dmft per school ranged from a high of 6.8 to a low of 11, both from rural districts. 94% of the learners required treatment, the majority (90%) needing preventive care. The Unmet Treatment Need (UTN) was 97%.

Conclusions: The number of caries-free six year old children in KwaZulu-Natal has declined further compared with ten years ago. Dental caries is still a major public health problem. An effective and efficient oral health promotion programme will do much to instil simple healthy behaviours at an early age.

Keywords: dental caries prevalence, health promoting schools, oral health promotion, oral health services, treatment needs.

ACRONYMS
BASCD: British Association for the Study of Community Dentistry
UTN: Unmet Treatment Need

INTRODUCTION
Three national studies have been conducted in South Africa. The first by Williams in 1984 was on dental health status of 12-year-olds. The second study determined the oral health status of adults and children in the five main cities in South Africa in 1988/89, and the third study in July 1999 to June 2002 focused on children between the ages of four and 15 years. The latter two studies were conducted by the National Department of Health.

The National Children’s Oral Health Survey (2003) indicated that only 35.2% of six-year-olds were caries-free in KwaZulu-Natal and 40% received dental treatment. A comparison of results for six-year-olds in the Durban region for both of the Department of Health National surveys indicated that there was a decrease in mean dmft from 3.89 (1988) to 3.42 (2002) and decayed teeth from 3.58 (1988) to 2.79 (2002) with no difference in results for the number of filled teeth (0.15). One of the new National Goals for six-year-olds for 2020 is to increase the percentage of this age group who are caries-free to 60% in addition to having fissure sealants placed in 60% of these children.

Dental caries is influenced by multiple factors such as diet, socio-economic status and the availability of oral health services. The affliction is identified as the most widespread condition affecting children in South Africa. The inevitable dental pain and discomfort result in the loss of school days and dental caries has become a major public health concern because of the burden it places on public health services.

Evidence in the literature suggests that intervention strategies that are currently employed are standardised and not evidence-based for diverse populations. These interventions are therefore not producing the desired outcomes resulting in the failure of the current national oral health plans in South Africa. Consequently, the prevalence of caries in children has not been adequately addressed through policy and service delivery.

There is a paucity of information available on dental caries status in KwaZulu-Natal, South Africa, particularly in the rural areas where the majority of the population live. The last National Oral Health Survey, conducted ten years ago, established that there was an increasing rate in caries in six-year-olds, especially in the primary dentition. The school setting, where education and health programmes can have a great impact by influencing learners at important stages in their lives – childhood and adolescent, was chosen for this study. The purpose was to assess the dental caries status of a sample of six-year-old learners at health promoting schools in KwaZulu-Natal and to establish new baseline information prior to the implementation of an oral health promotion programme at these schools.

METHOD
The study sample (n=345) comprised Grade 1 learners attending 23 schools that were selected from the eleven districts of KwaZulu-Natal using multistage cluster sampling. Schools were selected according to districts and then quintiles. Using a sample size calculator, a power calculation was done with a confidence level of 95% and a confidence interval of 5, selecting 345 learners for caries assessment from a total of 2402 Grade 1 learners, a selection that translated to an average of 15 learners per school. Systematic random sampling was used to identify participants by randomly selecting learners.
“An effective and efficient oral health promotion programme at schools, targeting both parents and young children, will do much to instil simple but beneficial oral health behaviours at an early age.”
from approved parental consent forms that were provided to each school. The reporting of the status of the tooth focused on primary teeth, given the age group that was examined, and given the presence of only a few permanent teeth. However permanent teeth were included for the assessment of treatment needs, to report on caries arrest and sealant care for this age group.

This was an epidemiological explorative study using quantitative data. The World Health Organization DMFT Tool (1994) was used to record the data. Gatekeeper permission was obtained from the Department of Education and the principals of the selected schools. The study was approved by the Humanities and Social Sciences Research Ethics Committee of the University of KwaZulu-Natal (HSS/0509/0130) and ethical guidelines was used to ensure confidentiality in the management of data.

An information sheet and parental consent forms in English and Zulu were sent to all parents of Grade 1 learners at selected schools requesting consent for dental examination. Assent was obtained from the learners prior to the examination. Examinations were conducted only on learners who were willing and whose parents had granted consent. Field assistants were calibrated for visual dental caries diagnosis using the method developed by the British Association for the Study of Community Dentistry (BASCD) with intra-oral photographs to a kappa score of 0.90 for inter-examiner reliability. Intra-examiner reliability was maintained according to World Health Organization standards for oral health surveys by repeating every fifth oral examination completed.

A tooth was recorded as decayed only if there was a visible break in enamel and missing teeth were scored only if it could be ascertained that the loss was due to caries. There was no treatment score for arrested decay with no pain on deciduous teeth.

Non-invasive oral examinations, using only a wooden spatula for retraction, were performed on learners sitting on a chair in good natural light with their heads slightly tilted, either forwards or backwards, and the examiner seated in front. Optimal infection control procedures were maintained by using new spatulas and gloves for each patient and having the examiner wear a mask. Learners requiring further dental management were referred to the nearest dental clinic.

Data were recorded on the World Health Organization DMFT tool and transferred onto Excel. The statistical package used for data analysis was SPSS version 21.0.

RESULTS

The sample of Grade 1 learners (n =345) had a ratio of males to females of approximately 1:1 (51.6%-48.4%). The mean age of the participants was 6.8 years with 96.7% in the six- to eight-year-old age group. Fourteen (60.9%) of the schools were in rural areas, six (26.1%) in peri-urban and three (13%) in urban areas.

The Pearson Chi Square Test showed no significant differences in the results of the repeated tests for intra-examiner reliability, confirming repeatability.

Of the total study sample (345) of learners, 130 (37.7%) male learners presented with caries compared with 114 (33.0%) female learners. The Fischer’s Exact Test (p-value 0.196) implied that there was no significant relationship between gender and the number of decayed teeth. The prevalence of caries between the rural and the urban learners also showed no significant difference.

The caries experiences of primary teeth of six-year-olds are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Caries experiences of the primary teeth of six-year-olds in a KwaZulu-Natal sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Mean no. of primary teeth per person</strong></td>
</tr>
</tbody>
</table>

The mean number of primary teeth and the mean number of decayed primary teeth per person was 14.98 and 3.13 respectively. The percentage of subjects with caries in the primary dentition was 73%. Only 0.11% of total number of primary teeth examined was filled and the percentage of missing primary teeth per person was 2.54%.

Table 2 shows a distribution of the components of dmft with low missing (0.5) and filled (0.02) components and a mean dmft of 3.65.

<table>
<thead>
<tr>
<th>Table 2: Distribution of the mean dmft and the components of dmft for the six-year-old age group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>dmft</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>3.65</td>
</tr>
</tbody>
</table>

The severity of dental caries expressed as the mean dmft for schools and percentage dmft per child and district in KwaZulu-Natal are shown in Table 3.

The mean dmft scores for the districts ranged from a low of 1.9 (Umkhanyakude) to a high of 5.7 (Amajuba). The d component of the dmft made up more than 85% of the total mean. The mean range dmft for schools was 1.1 (Masheshele, Umzinyati District) to 6.8 (Cebelihle, Amajuba District) which are both located in rural areas.

The percentage dmft per child ranged from a low of 4 (Masheshele, Umzinyati District and Ezimbieleni Umkhanyakude District) to a high of 21 (Cebelihle, Amajuba District). This translated to 96% of the children having a dmft of 0 in the Umzinyati and Umkhanyakude districts, both rural areas. The percentage dmft per district ranged from a low of 6 (Umzinyati and Umkhanyakude) to a high of 18 (Amajuba). This meant that 94% of the children were caries free in the Umzinyati and Umkhanyakude districts, but only 82% in Amajuba.

Of the total sample only eight teeth had fillings recorded with seven from Bay Primary in the Uthungulu district. Seven fillings were present in one child. There were a higher number of posterior lower teeth missing due to caries compared with upper teeth.

The number of carious primary teeth by school and district in KwaZulu-Natal are shown in Table 4.

The percentage of decayed teeth varied widely for schools and districts with scores of 6 to 33.7 and 8.7 to 27.5 respectively. Umkhanyakude district, which had the lowest scores and Amajuba the highest are both rural areas.

The number of carious upper and lower primary anterior (incisors and canines) and posterior (first and second molars) primary teeth for the study sample are illustrated in Table 5.

The lower molar teeth suffered a higher incidence of caries present compared with the upper molars (508 vs 331). The findings for the anterior teeth were the opposite with a higher number of carious lesions present in the upper teeth. Higher caries scores were found predominantly in the rural areas.

Table 6 shows the treatment needs of learners. From the total sample (n=345), 94% (324) of the learners required some form of treatment. Ninety percent (90%) of the learners required preventive care, 35%, surface fillings and 5%, extractions. Learners at Sisonke, Ethekweni and Ugu districts required more fillings compared with learners in the Umgungundlovu and Inzimbi districts.

The number of teeth requiring treatment per child was 4.3. Fissure sealants were required on 16.4% of the secondary (first permanent molar) teeth examined, while 4.6% and 0.5% (primary and secondary) teeth required fillings and extractions respectively.

DISCUSSION

The current data may not be a good indicator of the impact of caries in South Africa. A small number of epidemiological studies have been conducted...
in KwaZulu-Natal, especially in the rural areas. This has resulted in limited information on dental caries status being available to inform planned oral health interventions that is based on the needs of the population. There have been few or no studies which have considered etiological factors, parental education and social factors that include various population groups and social classes. Similar findings have been found in studies done elsewhere in Africa where various diagnostic methods were used and there was a variation in the age groups assessed.

Of significance in dental caries epidemiological studies are the methods used for population sampling. South Africa has a diverse population with various social groups as well as populations living in different geographic locations namely urban, peri-urban and rural areas. It is therefore imperative that consideration be given to geographic distribution and to the methods used for population sampling prior to the planning intervention strategies for dental caries. These data would inform policy with a priority not given to oral health services so that parents and children understand the carious process and how to implement simple procedures for its prevention.

The results from this study have further identified that the percentages of caries amongst the rural group remaining untreated in KwaZulu-Natal. The Unmet Treatment Need Index (UTN) was used to calculate the amount of oral health services needed to be provided for treatment of caries in the six-year-old age group. The UTN was 97% which translates to more than 90% of all caries in this group remaining untreated in KwaZulu-Natal. Comparison of the results obtained in the Durban area to the National Oral Health Surveys (Table 7) showed an increase in the decayed (d) component and a decrease in the filling (f) component. The increase in the d component could be as a result of a change in diet in this area. The decrease in f component could be as a result of extractions being the only option offered at primary healthcare centres

Results from this study showed an increase in prevalence of caries for six-year-olds in KwaZulu-Natal when compared with the results obtained in the last National Oral Health Survey (2003) (Table 7). Evidence also shows only that one district (Umkhanyakude) from the eleven districts had a low dmft score (1.9) (Table 3) indicating that dental caries has not been adequately addressed and that there remains a need for an improvement in oral health services in KwaZulu-Natal. When the data was further analysed it was clear that there was an increase in the d and m components and a decrease in the f component of the dmft with the latter indicating a possible decrease in the provision of restorative procedures in oral health services.

Table 3: dmft per school and percentage dmft per child and district in KwaZulu-Natal

<table>
<thead>
<tr>
<th>District</th>
<th>School</th>
<th>Rural/peri-urban</th>
<th>Average dmft district/school</th>
<th>% dmft per child</th>
<th>% dmft per district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amajuba</td>
<td>Cebelihle P</td>
<td>R</td>
<td>5.7</td>
<td>6.8</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Clavis P</td>
<td>R</td>
<td>4.7</td>
<td>4.7</td>
<td>15</td>
</tr>
<tr>
<td>eThekweni</td>
<td>Greenbury P</td>
<td>PU</td>
<td>4.6</td>
<td>4.7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Zakhele P</td>
<td>PU</td>
<td>4.4</td>
<td>4.4</td>
<td>14</td>
</tr>
<tr>
<td>Sisonke</td>
<td>Ikopo P</td>
<td>R</td>
<td>4.0</td>
<td>4.1</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Mazongo P</td>
<td>R</td>
<td>3.9</td>
<td>3.9</td>
<td>12</td>
</tr>
<tr>
<td>Ugu</td>
<td>Mdizi P</td>
<td>R</td>
<td>3.2</td>
<td>3.2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Port Shepstone P</td>
<td>PU</td>
<td>4.0</td>
<td>4.0</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Port Shepstone JP</td>
<td>PU</td>
<td>2.9</td>
<td>2.9</td>
<td>9</td>
</tr>
<tr>
<td>Umgungundlovu</td>
<td>Fairleigh P</td>
<td>R</td>
<td>4.4</td>
<td>3.9</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>TPA P</td>
<td>U</td>
<td>4.9</td>
<td>4.9</td>
<td>15</td>
</tr>
<tr>
<td>Umkhanyakude</td>
<td>Echwebeni P</td>
<td>R</td>
<td>1.9</td>
<td>2.6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Ezimbidleni P</td>
<td>R</td>
<td>1.2</td>
<td>1.2</td>
<td>4</td>
</tr>
<tr>
<td>Umzinyathi</td>
<td>Endumeni P</td>
<td>PU</td>
<td>2.9</td>
<td>4.7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Mashesheleng P</td>
<td>R</td>
<td>1.1</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>Uthukela</td>
<td>MLS Colenso P</td>
<td>PU</td>
<td>4.3</td>
<td>4.3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>MLS Ladysmith P</td>
<td>U</td>
<td>4.4</td>
<td>4.4</td>
<td>14</td>
</tr>
<tr>
<td>Uthungulu</td>
<td>Bay P</td>
<td>PU</td>
<td>3.7</td>
<td>3.3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Phalane P</td>
<td>R</td>
<td>2.7</td>
<td>2.1</td>
<td>6</td>
</tr>
<tr>
<td>Zululand</td>
<td>Thengisangaye P</td>
<td>R</td>
<td>3.1</td>
<td>3.5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Velankosi P</td>
<td>R</td>
<td>2.7</td>
<td>2.7</td>
<td>8</td>
</tr>
<tr>
<td>Ilembe</td>
<td>Nokubusa P</td>
<td>R</td>
<td>3.4</td>
<td>3.5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Nophungwe P</td>
<td>R</td>
<td>3.4</td>
<td>3.4</td>
<td>11</td>
</tr>
</tbody>
</table>

*A peri-urban area is classified as an area immediately around an urban area and a rural area is found outside cities and towns.
per school and in the percentage dmft per child and per district for primary teeth. Although schools from the urban areas had high dmft scores (4.4–4.9), they were not as high as in some of the rural areas (5.7) (Table 3). These results differed from studies done in other provinces in South Africa where rural scores were all lower than those in urban and peri-urban areas.21,22

A study conducted in Portugal showed the opposite trend with caries scores significantly higher in rural areas.21 The higher scores in the rural areas in the current study could be due to incorrect diet, source of water and fluoride content, lack of knowledge on oral health education, poor access to oral healthcare, and affordability of fluoridated toothpaste.22 More research should be done to establish the risk factors for caries and the reasons for the swings in high and low scores in rural areas.

Primary teeth in the rural and urban areas were found to have no restorations but there was evidence of a minimal amount of conservative work in children in the peri-urban areas with the majority from a school in the Uthungulu district. Similar results were obtained in a study undertaken in Venda.19 Overall it appears that scant curative services are delivered. This could be as a result of a scarcity of oral health personnel, limited resources, lack of accessibility to facilities and affordability. Priority needs to be given to six-year-olds for curative and preventative services.

Most relevant was the confirmation that the percentage of learners requiring treatment was very high (94%) (Table 5). The most common type of care needed was preventive services (fissure sealants). The need for prevention and restorations was higher than the need for extractions. This could be as a result of the criteria used where teeth that were decayed with no pain and could not be restored were nevertheless not indicated for extraction. Reasons for these high scores could include affordability and a lack of availability and accessibility to oral health services, especially in rural areas. The type of services required varied between districts. All districts required preventative services. The majority of restorations required came from the Sisonke, Ethekwini and Ugu districts. For these services to be provided relevant oral health personnel, facilities, equipment and materials would have to be accessible.

Only 27% of the sample six-year-old age group in KwaZulu-Natal are caries free. More than 90% of caries goes untreated. If the criteria for the new

### Table 4: The number of carious primary teeth by school and district

<table>
<thead>
<tr>
<th>District</th>
<th>School</th>
<th>Caries</th>
<th>% caries/school</th>
<th>% caries/district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amajuba</td>
<td>Cebelihle P</td>
<td>101</td>
<td>33.7</td>
<td>27.5</td>
</tr>
<tr>
<td></td>
<td>Clavis P</td>
<td>64</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>eThekwini</td>
<td>Greenbury P</td>
<td>54</td>
<td>18</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>Zakhele P</td>
<td>62</td>
<td>20.7</td>
<td></td>
</tr>
<tr>
<td>Sisonke</td>
<td>Ixopo P</td>
<td>52</td>
<td>17.3</td>
<td>17.8</td>
</tr>
<tr>
<td></td>
<td>Mazongo P</td>
<td>55</td>
<td>18.3</td>
<td></td>
</tr>
<tr>
<td>Umgungundlovu</td>
<td>Fairleigh P</td>
<td>45</td>
<td>15</td>
<td>17.3</td>
</tr>
<tr>
<td></td>
<td>TPA P</td>
<td>59</td>
<td>19.7</td>
<td></td>
</tr>
<tr>
<td>Ilembe</td>
<td>Nokubusa P</td>
<td>52</td>
<td>17.3</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>Nophungwa P</td>
<td>51</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Uthukela</td>
<td>MLS Coleeso P</td>
<td>42</td>
<td>14</td>
<td>14.7</td>
</tr>
<tr>
<td></td>
<td>MLS Ladysmith P</td>
<td>46</td>
<td>15.3</td>
<td></td>
</tr>
<tr>
<td>Zululand</td>
<td>Thegisanganye P</td>
<td>43</td>
<td>14.3</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>Velankosi P</td>
<td>38</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Umzinyathi</td>
<td>Endumeni P</td>
<td>61</td>
<td>20.3</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>Mashesheleng P</td>
<td>16</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Ugu</td>
<td>Mlazi P</td>
<td>36</td>
<td>12</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>Port Shepstone P</td>
<td>31</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Port Shepstone JP</td>
<td>24</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Uthungulu</td>
<td>Bay P</td>
<td>40</td>
<td>13.3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Phalane P</td>
<td>23</td>
<td>10.7</td>
<td></td>
</tr>
<tr>
<td>Umkhanyakude</td>
<td>Echwebeni P</td>
<td>34</td>
<td>11.3</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>Ezimbileni P</td>
<td>18</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5: Number of carious upper and lower anterior and posterior primary teeth

<table>
<thead>
<tr>
<th>Type of tooth</th>
<th>Number of carious teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper first and second molars</td>
<td>331</td>
</tr>
<tr>
<td>Upper incisors and canines</td>
<td>198</td>
</tr>
<tr>
<td>Lower first and second molars</td>
<td>508</td>
</tr>
<tr>
<td>Lower incisors and canines</td>
<td>34</td>
</tr>
</tbody>
</table>

### Table 6: Treatment needs of learners

| No. and percentage of participants requiring preventive/caries arresting care | 311 (90%) |
| No. and percentage of participants requiring surface fillings               | 120 (35%) |
| No. and percentage of participants requiring extractions                    | 17 (5%)   |
| No. and percentage of children needing treatment                            | 324 (94%) |
| No. and percentage of teeth (secondary) requiring fissure sealants           | 1130 (16.4%) |
| No. and percentage of teeth (primary and secondary) requiring fillings      | 320 (4.6%)  |
| No. and percentage of teeth (primary and secondary) requiring extractions    | 38 (0.5%)   |
| Mean no. of teeth per child requiring treatment                              | 4.3        |

### Table 7: Comparison between data from NOHS 1988, 1999–2002 and that from current study of prevalence of dental caries and untreated caries in six-year-olds in KwaZulu-Natal

<table>
<thead>
<tr>
<th>Year</th>
<th>% caries KZN</th>
<th>% untreated caries KZN</th>
<th>% children need care KZN</th>
<th>dmft Durban</th>
<th>d (Durban)</th>
<th>f (Durban)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td>3.89</td>
<td>3.58</td>
<td>0.15</td>
</tr>
<tr>
<td>1999–2002</td>
<td>64.8</td>
<td>59.9</td>
<td>62.3</td>
<td>3.42</td>
<td>2.79</td>
<td>0.15</td>
</tr>
<tr>
<td>2013</td>
<td>73%</td>
<td>71%</td>
<td>93.9</td>
<td>4.55</td>
<td>3.1</td>
<td>0</td>
</tr>
</tbody>
</table>

National Health Goals for 2020, which state that 60% of six-year-olds must be caries free and have fissure sealants placed on their first molars in Grade 1 are to be met in KwaZulu-Natal, oral health services would need to be drastically improved. In order for this to occur, School Health Services would need to prioritise oral health services by employing oral health personnel, such as oral hygienists and dental therapists, and ensuring that the focus of services provided at clinics should include restorative care for the treatment of caries.

Results from a previous study conducted in Hlabisa in 2002 were also compared with results from the Umkhanyakude district in this study, to which Hlabisa belongs. The dmft for the Umkhanyakude district was 6 in this study, which was double the score for Hlabisa (3). The increase in dmft could be as a result of an increase in per capita sugar consumption together with a decrease in water fluoride levels. There was a slight difference in the number of fissure sealants required per learner in both studies but there was a huge difference in the number of learners requiring restorations. In this study only eight learners required restorations compared with 95 in the Hlabisa study. This large difference could be due to the differing criteria used for caries diagnosis in the deciduous teeth. This study has revealed a high caries prevalence in the six-year-old age group in KwaZulu-Natal highlighting the need for a change in approach to the control of this disease. Taking into consideration the difference in availability of oral health services in the various districts and the fact that it will take a long time for this issue to be addressed due to limited funding, the school setting could provide an affordable platform for oral health promotion programmes based on the needs of the community at a local level. Data provided in this study reflect what is currently in place in KwaZulu-Natal and can be used as a basis for future planning of preventive programmes targeting primary school children.

CONCLUSION

The number of caries-free six year old children in KwaZulu-Natal has declined further compared with ten years ago. Dental caries is still a major public health problem and most children require some type of treatment including preventive care. Current oral health services need to shift from a curative to a more preventive approach for an improvement in service delivery. An effective and efficient oral health promotion programme at schools, targeting both parents and young children, will do much to instil simple but beneficial oral health behaviours at an early age. It will take a long time to bridge the gap currently present, but making available basic information to learners and parents for the prevention of caries would be a good start.

ACKNOWLEDGEMENTS

This research project was supported with Research Grants from:

- The University of KwaZulu-Natal
- The National Research Foundation
- Thanks and appreciation also to Prof F van Wyk, and statisticians
- Mr P Naidoo and Mr D Singh for assistance with the data analysis.

Corresponding author: M Reddy, Lecturer, Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal-Westville Campus. Private Bag S4001 Durban 4000
Tel: 031 260 8270. E-mail: reddyM@ukzn.ac.za.
Clinically defined periodontal disease is highly prevalent, has considerable impacts on individuals and society and is costly to treat; the cost of dental care is the fourth highest costs of all diseases and consuming between 5 and 10% of all healthcare resources. Changes in the epidemiology of clinically defined periodontal diseases suggest that the prevalence of severe periodontal disease is low and rates of progression of periodontal destruction tend to be relatively slow. Current periodontal care modalities have a remarkably weak evidence base, with considerable resources allocated to fund interventions that include oral hygiene instruction, scale and polishes through to surgical interventions. The public health problem lies more in the failure in design of a contract between dental professionals and the state. Such a contract needs to recognise both the wider determinants of disease and the role that dental professionals could play: a contract that concentrated on rewarding outcomes, namely a diminution in treatment need, as opposed to one based simply on the number of interventions would be a major step forward.

INTRODUCTION
Paedersen1 in a global review of oral diseases highlighted how oral diseases qualified as major public health problems due to their high prevalence and incidence in all regions of the world. He went on to suggest that approaches to managing the problems ranged from intensive one-to-one relationships between the patient and the care provider through to a ‘public health approach’. The balance between the two would be determined by a number of factors, including the distribution of the condition and available resources. Defining how a condition is best managed is critical for a number of reasons. Most importantly, with the increasing financial pressure on healthcare systems, there is a need to ensure that for a given outcome, expenditure is minimised, the cost-effectiveness of differing interventions is key in decision-making.

There are a number of criteria that are used to establish whether a condition is a public health problem and consequently appropriate to be managed using a public health approach. Periodontal disease fulfils them; it is widespread; its consequences in terms of social, psychological and economic impacts on individuals, communities and health services are severe; the costs to society and to individuals are considerable; and effective methods are available to prevent, alleviate or cure the disease. Given the above, why then does periodontal disease remain such a problem?

This article will explore this question and suggest that the extremes of periodontal disease are limited, although for those that do suffer, it impacts severely on their qualities of life. The manifestations of periodontitis – bleeding, halitosis, gingival recession and tooth loss – can also have an impact beyond the individual sufferer. The costs of treating the disease are high because of the way in which dental care is organised: the costs of treatment are expensive for individuals and societies and remain so due to the current inappropriate approaches used to manage the conditions.

The current state of knowledge of the diseases and in particular associated risk factors, means that while there is sufficient information to enable control of the common forms of the disease, existing interventions are not effective.

The key conclusion is that until shortcomings in both financial and human capital are addressed, periodontal disease will remain a public health problem. The challenge is to recognise the key issues: both politicians and dental professions, as advocates for patients, need to act to address them. Health is a political problem and only when the design of the delivery system allows care workers to act as advocates for the public will the problems of periodontal disease be tackled.

DEFINING A PUBLIC HEALTH PROBLEM
Defining a public health problem forms the central argument to the question as to whether a health issue is a ‘public health’ as opposed to simply a ‘health’ problem. The distinction lies in what is understood by the term public health. Winslow2 argued that public health was: “the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals.”

Over 80 years later Rothstein3 reiterated the general sentiments in the definition arguing that there were three issues to distinguish between public health and health problems. These were where the health of the population is threatened by something (including environmental factors not just diseases); where the government has powers or expertise to meet that threat; and where the action of government will be more efficient or more likely to be beneficial than the actions of individuals.

This definition recognises that if a problem exists, the solution is not simply derived through individual actions, for example attending for a dental appointment, but by those of society. However, this still fails to address whether any given condition is a problem. Sheiham4 suggested a number of criteria that are necessary to help establish whether the issue under consideration is indeed a public health problem. The criteria include: the distribution and extent of the condition, namely how widespread is it and whether the prevalence is increasing or decreasing; and the impact of the condition on individuals, for example the extent to which the condition causes pain, discomfort and affects functions such as eating, speaking, sleeping and social interactions that cause embarrassment. Further impacts would include the financial cost of treatment, absence from work and loss of income that in turn may lead to impacts on the wider community. This would include the effect it may have on people attending school or work. There are the costs to the health services of treating the condition and finally, and most importantly, is the condition preventable and are effective treatments available?

Periodontal disease fulfils all the criteria. As Chapple has stated recently: ‘Periodontitis is the most common chronic inflammatory disease seen in humans, affecting nearly half of adults in the United Kingdom and 60% of those over 65 years. It is a major public health problem, causing tooth loss, disability, masticatory dysfunction, and poor nutritional status. Periodontitis also compromises speech, reduces quality of life, and is an escalating burden to the healthcare economy.’4

In summary, periodontal disease using a disease definition is highly prevalent, has considerable impacts on individuals and society and is costly to
treat, the cost of dental care is the fourth highest costs of all diseases and consuming between 5 and 10% of all healthcare resources.1–4 Periodontal diseases are in the vast majority preventable and there are effective methods of managing them.

THE NATURE OF PERIODONTAL DISEASE

Our understanding of the disease process itself has changed considerably over the years. Sheiham6 has summarised the changes as follows. At the population level, the prevalence of destructive periodontal disease is considerably lower than previously estimated and, in most industrialised countries, the public’s periodontal health appears to be improving. Internationally, the prevalence of severe periodontal disease is low and rates of progression of periodontal destruction tend to be relatively slow. A small proportion of subjects exhibit severe and extensive periodontitis with approximately 1 in 1,000 suffering from aggressive periodontitis. Mild gingivitis is common in children and adults, and very few children demonstrate loss of bony support and loss of periodontal attachment. There is consensus that severe periodontal disease occurs in a few teeth in a relatively small proportion of people in any given age group, and that the proportion affected is greater in older age-groups.

At an individual level there have also been considerable changes in our understanding of the disease with the natural history of periodontal disease progression being more complex than previously suggested. The old ‘continuous progression’ model of periodontal disease considers that gingivitis progress to periodontitis. A slow loss of attachment follows and its bony support progressing continuously until the tooth is non-functional. Such a model suggests that once a person has periodontal disease only continuous treatment will prevent the inevitable progress of the destructive lesion to severe periodontitis. There is little evidence to support this model. More recently, the model described has been challenged by one based on ‘bursts’. Key differences are recognising that not all gingivitis progresses to irreversible periodontitis and that not all mild periodontitis progresses to severe periodontitis. Individuals exhibit differences in exposure and resistance and the most serious phases of periodontitis being not as common as formerly thought. Finally, there are growing questions about the extent to which periodontal disease causes tooth loss.5

These developments, however, do not detract from periodontal disease being a public health problem, but highlight that it is essentially socio-political in character. As with other major non-communicable diseases such as cardiovascular disease, obesity, diabetes and cancers, the social determinants of dental diseases share common antecedents.5–12 Significant control of dental diseases can only be achieved in terms of social policy. The task of health workers is to convince society to undertake the specific social measures that are required to solve health problems, and to participate in the implementation of these policies. Avoiding the need for developing effective social policies for health in favour of concentration on problems of individual health behaviour is not only oversimplification, but an evasion of professional responsibility.

FINDING AN APPROPRIATE SOLUTION

All societies aim to ensure the health of their citizens. Governments try and achieve this by developing healthcare systems that set out to address three main challenges: how to improve the health status of both individuals and the population; how to develop arrangements to protect citizens from threats to their health and the costs of care should they require it; and how to ensure equitable access.13 The contextual setting for the above challenges that all care systems face is that of limited resources. Even the wealthiest societies face limitations in what care they can provide. All healthcare delivery systems have implicit or explicit boundaries on the availability of care related to whether a society limits specific types of interventions for all citizens, limits the occasions when an individual can receive it or simply who can receive it.

These issues raise the further question on the arrangements surrounding the decision-making processes within a system. Is the design of the system aimed at ensuring those who seek care can have it or is there an emphasis on targeting those with the greater needs? How is the balance between the more immediate interventions that address a problem, for example dealing with acute myocardial infarctions, balanced against longer term issues such as preventing heart disease in the first place? What is the process to decide on allocating spending on say cancer rather than dental care? Such questions have led to the necessity to identify mechanisms to prioritise, not only which interventions a society is willing to provide for its citizens, but also the arrangements through which the care will be delivered. That is far from simple. Musgrove14 highlighted nine criteria grouped under three themes for helping identify issues when considering the justification for public spending on healthcare. These range from economic efficiency, ethical reasons and political considerations. Referring to a previous authored paper, Musgrove15 added: ‘Simply being a public good is not reason enough for the government to finance a healthcare intervention, because the result in improved health might not be worth the cost – the same resources could be better used for another health service or for some non-health activity.’

The issues raised by Musgrove get to the heart of the matter to help establish whether a health condition is worth addressing or to consider if there are benefits that might be accrued through other arrangements. Musgrove recognises that the funding of interventions outside of the healthcare system may well provide improvements in health conditions.

The nature of health problems facing care systems has seen the balance between acute and chronic diseases change. Currently, it is the management of chronic disease that set the challenges: obesity, diabetes, respiratory and coronary conditions. Societies are attempting to adapt their care systems to confront the challenges, not least by adopting a growing role for what is termed a ‘public health’ approach. Such an approach introduces the idea of identifying the ‘cause of the cause’ and even the ‘cause of the cause of the cause’.16 It makes the important distinction between disease and the determinants of disease.

The outstanding issue of what we actually mean by health remains. No longer is a definition based simply the absence of clinical disease adequate. The term has a wider meaning and needs to include various social dimensions, for example function and well-being.

THE CRITICAL ISSUE OF DEFINING PERIODONTAL DISEASE AND ITS NATURAL HISTORY

As discussed earlier our understanding of the nature and epidemiology of conditions affecting the periodontal tissues has changed considerably over the last 50 years.17 They identify four main features of what they termed the periodontal diseases. These are that: clinical attachment loss of 1 mm or greater is highly prevalent even in very young subjects; within a given population, the prevalence of attachment loss, the extent of attachment loss and the severity of attachment loss increase with age; within a given age group, the distribution of the extent and severity of destruction tends to be right-skewed to such a degree that a minor fraction of the subjects carries the major burden of destruction in the group; and, within a given population, the intra-oral pattern of distribution of periodontal destruction is rather distinct and corroborates the molarincisor pattern originally considered characteristic for juvenile periodontitis.

What Baelum and Lopez18 highlight is how the definitions of periodontal disease have altered to meet the requirements of a particular set of
scientific beliefs. The definitions have changed from a time when a microbiological solution was sought ‘plaque-induced’ and ‘not plaque-induced’ periodontal disease, through a period when ‘active’ and ‘inactive’ sites might provide an insight into addressing the professionally defined problem, to the current vogue of ‘periodontal medicine’, in which an individual’s general health is linked to their periodontal status.

These issues of definition of what is periodontal disease are critical. As Baelum and Lopez state, the distinction between what is termed periodontal health and disease is not fixed. The definitions change according to professional agendas. This is a view that is in agreement with Borrelli and Popapanou29 who highlighted the lack of uniformity in definitions and highlights a key failing of current care delivery systems. The systems concentrate on a ‘disease’ model and pay no heed to the wider definitions of health. Because a person may have a number of teeth with a loss of attachment of 4 or 5 mm in is itself not a problem. The real issue is how the periodontal state impacts on the qualities of life of individuals.

What such a broader approach creates is a problem when assessing the magnitude of future health problems. Individuals are now retaining more teeth and for longer. This has a direct impact on the size of the periodontal problem. For example, an individual who has lost all their teeth does not have a periodontal problem. However if they retain more teeth that are functional and in which the aesthetics are acceptable, the volume of the problem will still increase if a disease-based model is used to quantify the magnitude of the problem. Unless the assessment is made in terms of impacts on qualities of life, the additional number of pockets can only create a higher level of clinically assessed disease.

The above issues highlight the importance of defining what periodontal disease is. It is not the level of disease per se, but its definition that is critical when answering the question as to whether periodontal disease is a public health problem.

HOW EFFECTIVE ARE CURRENT CARE MODALITIES?

Notwithstanding the lack of definitions there still remains a need to assess the impact of care modalities. Considerable resources are allocated to fund interventions that include oral hygiene instruction, scale and polishes through to surgical interventions. These have a remarkably weak evidence base. Perhaps the most damning of statements regarding progress in identifying appropriate care modalities for periodontal disease was that provided by Herrera et al.8 They felt that: “it would be inappropriate to make definitive and specific recommendations regarding clinical practice based on the limited meta-analysis and the review of these 25 studies”.

Needleman et al.25 in a systematic review of professional mechanical plaque removal for prevention of periodontal diseases also drew similar conclusions regarding the lack of evidence to underpin clinical practice. They stated: “There appears to be little value in providing professional mechanical plaque removal (PMPR) without oral hygiene instruction (OHI). In fact, repeated OHI might have a similar effect as PMPR. Some forms of PMPR might achieve greater patient satisfaction. There is little difference in beneficial or adverse effects of different methods of PMPR.”

Briere et al.27 also reinforced this view. They concluded “(the evidence) is of insufficient quality to reach any conclusions regarding the beneficial and adverse effects of routine scaling and polishing for periodontal health and regarding the effects of providing this intervention at different time intervals.”

Perhaps the most critical observation was that made by Sheiham and Netuveli24 who stated: “In an era of evidence-based healthcare, the current uncritical position where any inflammation of the gingivae or shallow pocketing is considered in need of treatment is untenable. Advanced periodontal disease does affect a relatively small percentage of adults and is more common in older people. The progression pattern of the disease seems compatible with retention of a functional dentition throughout life for the majority of people in Europe”.

All the authors of reviews come to remarkably similar conclusions. The evidence base to underpin care modalities is very poor. There is not only a lack of consensus in what is termed periodontal disease, but the care modalities themselves lack justification for their adoption. This indicates that if a problem in managing periodontal health does exist, it may be far more deep-rooted than the disease itself.

WHERE DOES THAT LEAVE US:
THE QUESTIONS THAT NEED ADDRESSING

It is remarkable that despite the considerable resources allocated within healthcare systems to address what is termed periodontal disease, there remains no clear understanding of it or its management. As Prato et al.29 comment: “even today, in periodontology, clinical significance is judged only on the basis of statistical values (for example, the p value)”.

This ignores the very purpose of sound periodontal tissues, namely to allow a functional and aesthetic dentition that meets the needs of citizens.

It is not periodontal disease that is the public health problem but, the current approach adopted in attempting to address citizens’ needs. The approach is flawed. There is a narrowing in the thinking behind the definition and assessment of an individual’s needs derived from periodontal
measurement. Current models concentrate on the clinical disease and the assessment is defined in ways that are continually changing. The impacts of the range of conditions known as periodontal diseases on individuals are not being taken into account. Instruments that measure this and how they change need to be adopted. There is a lack of an evidence base to underpin current individual interventions. Even for perhaps the most common intervention adopted, dental health education, Watt and Marinho’s conclusions can be summarised by the question ‘If dental health education works why then is there a need to reinforce it every year?’

Despite these issues, delivery systems have continued to support such approaches. They have at the same time failed to adopt arrangements that incentivise healthcare professions to use arrangements that have been shown to be effective. Such arrangements recognise the wider public health approaches needed to address the problem. Jürgensen et al. summarised matters succinctly. They argued that public health research could facilitate integrated disease prevention, enable the development of appropriate oral health systems and build capacity for public health intervention for periodontal health.

**SUMMARY**

In attempting to answer the question as to whether periodontal disease is a public health problem, a series of complex issues are raised, answers to which are more intricate than might initially appear. Perhaps the most critical issue centres on how a society defines and hence what it infers by the term ‘periodontal disease’. The current emphasis is based on a definition that adopts clinical disease as its measure. This has considerable implications not least of which is that it seeks the solution on a model of care that is flawed. It cannot and will not ever provide a solution to ‘periodontal disease’. This is the public health problem. It is dealing with a challenge that lies in recognising that the periodontal tissues allow a functional dentition that in turn provide individuals with the means to enjoy various qualities of life including eating and smiling.

The more appropriate question lies not in asking whether periodontal disease is a public health problem, but whether the approach adopted in the delivery system is. The challenge is to move away from a ‘disease centric’ model of care to one in which the focus is on the wider qualities associated with health. Such an approach requires health professionals to work with policymakers, the education and training system and politicians to achieve the reorientation of health systems.

Periodontal disease may well be associated with a public health problem, but the cause lies with the care system itself. The problem with periodontal disease is one of association not causation. To achieve the goal the care system needs to manage periodontal conditions in terms that move away from one based on a clinical disease model. A focus on aspects such as outcomes of care, ‘upstream’ health improvements, population orientation and care continuum management that is patient-centred provides an appropriate starting point. Only then can solutions to the problems arising from the spectrum of periodontal conditions that affect citizens be managed in an efficient and effective manner.

Such a solution does not distract from the role that the dental professions can play in tackling periodontal problems. However, the delivery system needs to adapt to allow care providers to fulfil their potential roles in supporting patients and the public at large. It is a political as well as a clinical role: the professions need to act as advocates for patients. The design of a contract between dental professionals and the State that recognised both the wider determinants of disease and the role that dental professionals could play would be a start. Indeed a contract that concentrated on rewarding outcomes, namely a diminution in treatment need, as opposed to one based simply on the number of interventions, would be a major step forward. Until then periodontal disease will remain a public health problem, but it is a consequential not causative link: the current design of the care management system does not help but hinders improvements in disease levels.

**Correspondence to:**
Dr Paul Batchelor, Email: p.batchelor@ucl.ac.uk

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UNANTICIPATED TREATMENT

COMPLICATION AND LEGAL RECOURSE

S Naidoo, BDS(Lon), LDS(RCS (Eng), MDPh (Lon), DDPH. RCS (Eng), MCHD (Comm Dent), PhD (US), PG Dipl Int Research Ethics (UCT). Senior Professor and Principal Specialist, Faculty of Dentistry, University of the Western Cape
J Du Toit, BChD, Dipl. Implantol., Dip Oral Surg. Postgraduate student, School of Oral Health Sciences, University of the Witwatersrand

Published in SADJ March 2015, Vol. 70 no. 2 p76–p77 (Permission was granted to reprint this article).

SCENARIO

A middle-aged, partially edentulous Caucasian female patient presented to a general dentist for extraction of a mandibular tooth. The tooth was removed by the dentist, but following incomplete resolution of pain the patient returned three months later for a consultation. The dentist diagnosed an abscess following radiographic investigation and referred the patient to a specialist who diagnosed a fracture of the mandible. The fracture had occurred unbeknown to the dentist and was consequently treated by a reduction procedure. The patient has since pursued legal action against the dentist.

BACKGROUND

The extraction of teeth is a routine part of daily clinical dentistry, and while practitioners may choose to refer the patient to maxillofacial and oral surgeons, the removal of teeth remains a treatment modality that can be carried out by any general dentist. Removal of teeth requires the severing of periodontal tissues and its forceful dislodging from within the tooth socket. Periodontal disease, loss of clinical attachment and bone, existing infection and necrosis of the tooth socket may all contribute the tooth’s mobility, rendering it easier to remove. In some instances, extraction of a tooth requires extreme and considerable surgical intervention to ensure that it is entirely removed – roots and all.

Force applied to a tooth during extraction may be dissipated and transferred to the surrounding bone, to the temporomandibular joint, and throughout the masticatory apparatus. Isolating this applied force solely to the tooth and its immediate periodontal tissues may not always be possible. In addition, anatomical structures may negatively contribute to the strength of the jaw tissues, making them susceptible to injury or even fracture, to dislodging of the tooth and/or parts of it into neighboring anatomical spaces. The mandible exceeds the maxilla in terms of strength of cortical bone, but nevertheless has anatomically weak areas liable to damage and fracture. With the loss of posterior lower teeth, considerable mandibular resorption may occur. The bone flattens and thins posteriorly as the mylohyoid groove and submandibular fossa continue to the ramus – a point of anatomical weakness. The third molar is typically located at this posterior location within the angle of the mandible, may occupy a considerable volume within the bone and when removed may leave a defect that significantly weakens the jaw. The clinician should be aware of these anatomical idiosyncrasies, ensure that pre-operative investigations are carried out and that the patient has been duly informed of the risks and of possible complications prior to treatment.

Complications and mistakes are inevitable in the practice of dentistry and while in many instances are not permanently harmful, some certainly may be. Mistakes turn into negligence when it is confirmed by a reasonable body of expert opinion that they are harmful, that the harm was caused by the dentist in question and that the mistake did not conform to good professional conduct (i.e. was not the sort of mistake that is unavoidable in the circumstances). Negligence may be defined as a “failure to exercise reasonable skill and care” or the “omission to do something which a reasonable man guided by those considerations which ordinarily regulate conduct of human affairs, would do, or something which a prudent and reasonable man would not do.”

Every qualified dentist is expected, by virtue of his or her qualification, to possess a degree of skill and to appreciate that care must be exercised to the same standard as by the majority of his/her colleagues. A general dentist is not expected to possess the skills of a specialist, but more importantly, should not attempt any treatment which should be provided by a specialist and any attempt to do so could be construed as a failure to exercise reasonable care. That said the general practitioner in this scenario was not practising outside of his or her scope per se.

In general, when a patient is accepted for treatment by a dentist it is an implicit, though unstated, condition of the contract thus established that reasonable skill and care will be exercised. Any patient can initiate legal action to recover damages by way of compensation against a practitioner on the grounds of negligence but for this to succeed it has to be proven that:

(i) The dentist owed a ‘duty of care’ to that patient in the prevailing circumstances,
(ii) There was a breach of that duty and
(iii) Damage was sustained as a result.1

ETHICAL CONSIDERATIONS

Respect for a patients’ autonomy is reflected by good communication. Rendering appropriate clinical care (beneficence) requires effective communication and failure to do so can result in harm to the patient (maleficence). This in turn can have legal consequences (justice). From an ethical perspective, the patient-centered approach used in healthcare is in keeping with the principle of respect for autonomy. Respecting patient autonomy requires dentists to be honest with their patients, but it is not always easy to disclose to a patient that something has gone wrong and in your efforts to improve their condition you have inadvertently caused them harm. Nor is it always possible to disclose to a patient every possible complication or adverse effect of a proposed treatment modality. Disclosure requires a strong moral character and while moral and legal principles may guide us through ethical dilemmas and identify basic standards for decision-making, they do not define what makes someone a good dentist. Personal attributes of compassion, trustworthiness, integrity and discernment – sometimes referred to as moral ‘virtue’ – are of especial importance, together with the added virtues of courage balanced by the virtue of prudence. That said, even the good, moral dentist may encounter complications, and unfortunately – legal recourse.

Informed consent must be obtained prior to delivering any treatment. It is the patient’s autonomous authorisation of the clinical intervention or treatment.2 Giving thorough information regarding
the treatment is implicit and according to the National Health Act this is to include the:

• Range of diagnostic procedures and treatment options available
• Benefits, risks, costs and consequences associated with each option
• User’s right to refuse care after having received explanations of the implications, risks and obligations of such refusal
• Furthermore, this information must be provided in a language that the patient understands and in a manner that takes into account the patient’s literacy level.

To protect both patient and the clinician, these tenets are best provided in writing, and for the patient to autonomously sign agreement or disagreement against each item and to select the treatment after having had the time to consider alternative options, understanding the implications, risks and benefits of each option, as well as that of non-treatment. Obtaining such consent is an ethical and legal requirement and any coercion negates the voluntariness of the obtained consent. Clinicians aware that a certain operation carries a particular risk may inform that patient accordingly and obtain consent for the operation. The potential damage may still occur and the patient, despite the informed consent provided, may go on to sue the clinician for negligence. To succeed in such a claim the patient would need to prove that although aware of the risk, the clinician failed to exercise reasonable skill and care, either in the manner of his or her operating or even by attempting the operation him or herself instead of referring the patient to a more experienced colleague or a specialist. However, the clinician who attempts such an operation without informing the patient of the known risk places him or herself in a much worse situation and risk of subsequent legal action than when informed consent is obtained.

The following may be useful to prevent possible disagreements and miscommunication:

• Have educational material available to patients – pamphlets, booklets, electronically
• Invite your patient to pursue a second opinion if need be
• Keep concise records, written notes, radiographic imaging, etc.
• Ensure explicit and informed consent and record it
• Be adequately prepared for complaints and legal challenges
• Ensure thorough follow-up after more advanced and complicated procedures
• Investigate and address unusual postoperative symptoms
• Consult regularly with specialists and consultants and refer if necessary
• Keep updated with best practice care by attending continued professional education courses.

CONCLUDING REMARKS

The reasons for and risk factors following dental surgical complications may not be well known and understood by patients and therefore it is important that the time is taken to communicate these prior to any treatment proposed. In addition, supplementary patient information, such as take home pamphlets, may better protect and prepare both patient and clinician. Complications may occur at any time, even to the most experienced clinician, and should be managed effectively and efficiently. Paramount is an expression of empathy and concern toward the patient. Effective two-way communication may prevent the deterioration to a disagreement involving legal proceedings. If the clinician is aware that a mistake or complication has arisen, then it is prudent for the patient to be immediately informed and told what steps are going to be taken to rectify it.

Corresponding author:
S Naidoo, University of the Western Cape, Department of Community Dentistry, Private Bag X1, Tygerberg 7505.
E-mail: suenaidoo@uwc.ac.za.

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INFORMED CONSENT

Lesley Vorster, B.Sc. (WITS) BOH (UWC) M.Sc. (UWC)

INTRODUCTION

Informed consent (IC), the cornerstone of ethical medical practice, is the moral and legal obligation of the professional to ensure that a patient fully comprehends and evaluates the pros and cons associated with proposed treatment and that he/she then voluntarily consents to the described treatment, prior to the provision thereof. IC is founded on the ethical principle of autonomy (the act of self-determination). The professional, in disclosing all necessary information and ensuring understanding, directly invests the patient in his/her treatment, empowering him/her to take accountability of their own health, improving health outcomes. IC is thus ethically and legally crucial, but also therapeutically sound.

Ethically acceptable IC is underpinned by effective communication and empathy. Effective communication, in turn, improves doctor-patient rapport and inspires trust and confidence in the patient, thereby supporting the core value of societal trust. The doctrine of IC was only instituted by legislation in the 1950s. It evolved from a paternalistic philosophy, revolving around non-disclosure in an attempt to prevent alarming the patient to one of honesty, full disclosure, comprehension and voluntariness. Theoretically, IC appears reasonably achievable. In practice, however, many complexities are involved in ensuring that the consent obtained is adequately informed. The underlying discussion investigates the importance of IC and what considerations and conditions need to be addressed to ensure that a patient attending an academic medical centre, public or private practice has provided absolute IC.

IMPORTANT OF INFORMED CONSENT

IC is significant to both the patient and the professional. IC supports the patient’s right to autonomy and in so doing protects against discrimination, thereby upholding the patient’s foundational rights influencing health.

It provides patients with control over the amount of information they receive and for the selection of outcomes that he/she may value as opposed to those what the professional may deem as important. It is a process that does not coerce or deceive the patient, which is further reflected by the patient’s right to rescind previously given consent.

On the other hand, it provides the professional with legal and ethical justification to provide treatment that affects others and protects against litigation.

CONSIDERATIONS AND CONDITIONS TO BE ADDRESSED TO ENSURE THAT A PATIENT IS ADEQUATELY INFORMED

Within the context of an academic medical centre, it is important that at the outset, the patient is fully informed around the fact that he/she is attending an academic training institution and the implications thereof, namely that he/she will be examined and treated by student/s, acting under the guidance of supervisors.

Consequently, all information obtained from the patient will be presented to and shared with a supervisor and possibly other doctors and students. If this is not addressed, a patient may feel that his/her right to privacy and confidentiality has been violated. It must also be explained to and comprehended by the patient that should he/she present with any pathology or atypical variation that the supervisor may then, on his/her agreement, arrange for consultation with doctors from other departments. It is also highly probable that numerous students may be called upon to examine the patient in order to benefit from the presented learning opportunity. Similarly, the patient may also be requested to act as a model for certain treatment procedures, once again involving mass observation.

Likewise, within public and private practice the same norms apply. If in treating a patient, a medical professional determines that a patient needs to be referred to a specialist, reasons necessitating referral must be detailed and the patient must give consent for referral and sharing of necessary medical records.

Frequently, medical professionals may opt to write up a case study as a means of providing insight into a specific disease or condition and/or application of a novel intervention and outcomes in a single patient. Prior to write-up, the patient must be fully informed and understand that it is his/her right to agree to or refuse inclusion and that refusal does not mean that treatment will be compromised in any way. The patient must provide written, informed consent for inclusion in the study as well as use of clinical photographs and/or radiographs. In obtaining consent, it must be explained that the face will never appear on the photograph, only the necessary oral structures will be depicted and that the patient’s name will never be displayed with the photographs, radiographs or within the case report.

The principle of veracity (the duty of the professional to honestly disclose information pertaining to diagnosis, the pros and cons of applicable treatment options and prognosis in the absence of treatment) must be upheld at all times. Effective patient education, in turn, is reliant upon a knowledgeable professional. The professional is thus ethically obliged to actively acquire knowledge and to, post graduation, participate in lifelong learning.

The process of obtaining IC must be customised to the needs of the patient. The sociocultural and economic context of each patient may create vulnerabilities, which predispose the patient to taking decisions that they would not normally contemplate. It is therefore imperative to determine the social history and medical/dental IQ of the patient so that information and vocabulary used are directed at a level in accordance with the patient’s cognitive abilities. If it is determined that the patient is unable to provide informed consent, then consent must be obtained from the legal guardian. Additionally, information must be delivered in a culturally sensitive manner, respectful of health beliefs and practices and should be delivered in the patient’s primary language. In the presence of a language barrier, use of illustrations, demonstrations and plain language documents are needed. Following education, evaluation of the patient’s understanding is vital and re-education must proceed if necessary. The patient should not be overwhelmed with information.

A patient’s presence in the clinic is often accompanied by pain or trauma and the patient is likely to be in an agitated state. This anxiety will compromise his/her ability to give absolute IC. The patient should therefore also be allowed sufficient time to comprehend and evaluate information. Awareness of the psychological aspects at play is difficult. In general, patients are found to employ monitoring or blunting coping mechanisms. In the later, the patient does not want to know all the information and complexities of treatment. Respecting the patient’s autonomy means that, in...
this instance, full disclosure should not take place. Similarly, identifying a patient’s locus of control as either internal or external is important. People with an external locus believe powerful others and fate direct the course of their life, including treatment outcomes. Often the professional is regarded as a powerful other and these patients will appreciate the professional making a decision on their behalf. On the other hand, those with an internal locus, believe that they are in control and full disclosure will be necessary. In both instances autonomy has been upheld (i.e. the patient’s desires have been respected).

The professional must always defer to a patient’s decisions, even if these are contrary to his/her aims and values. Should the patient be unable to provide informed consent, then beneficence must take precedence over autonomy. It is also important to note that initial IC does not encompass alterations to proposed treatment. It would be immoral to change treatment without obtaining consent as this equates to nondisclosure, deception and forcing treatment onto a patient. IC therefore needs to be obtained for any amendments to the original treatment plan.

CONCLUSION

Obtaining informed consent is a complex process and an elusive ideal. No patient is able to accurately predict the impact of a treatment in the context of his or her life until the actual experience of it and, unfortunately, IC cannot be provided in retrospect.

REFERENCES


SPACES STILL AVAILABLE!
UNIVERSITY OF THE WESTERN CAPE

Application Form: Continuing Education Course 1
Entry level requirements: Diploma in Oral Hygiene (Dip OH), access to the internet, Gmail account

Course content:
• Conservative dentistry: ART, cervical abrasion lesions, temporary restorations, temporary cementation of inlays, crown and bridges
• Prosthetics: Placement of tissue conditioner
• Orthodontics: Cephalometric tracings, the relieving of trauma caused by intra- and extra-oral appliances, the removal and application of orthodontic attachments and bands and the re-cementing of orthodontic retainers
• Pathology: Cytological smears
• Oral surgery: Local anaesthesia and removal of sutures
• Periodontics: Application and removal of periodontal packs

Registration details:

HPCSA reg. number................................................................................................................................................................................................................................

Name and Surname ...............................................................................................................................................................................................................................

Address ..................................................................................................................................................................................................................................................

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Landline number ......................................................................................................................... Cell number ........................................................................................................

E-mail address ...................................................................................................................................................................................................................................

Please take note: Deadline for application: Friday, 3 June 2016. Seats are limited. Successful applicants will be informed by 7 June 2016 and provided with forms to complete the registration and payment process. E-mail or fax application form to Ms E Luckhoff eluckhoff@uwc.ac.za • Fax: 021 931 2287 • Enquiries: 021 937 3962
Every day you strive to improve the oral health of your patients, and at Colgate, we share that mission with you.

As a professional, you rely on evidence and science when deciding what products to recommend. That’s why we know you’ll appreciate the fact that Colgate Total is one of the most tested and researched formulas in the world.

Thanks to its unique formula, Colgate Total is clinically proven through over 90 clinical studies, and 20,000 subjects agree.

Know the Science. Get the Facts. colgateprofessional.com/science
The ToothFairies had a serendipitous beginning when Susan Brink and I met while volunteering for Friends of the Children’s Hospital. The hospital runs a play scheme for the children in the wards of the Red Cross War Memorial Children’s Hospital. At the time, we were both volunteering to help children outside of the dental arena, but as our friendship grew, conversations quickly turned to the often poor condition of many children’s teeth.

Getting started was surprisingly straightforward. Dr T Blake, Manager of Medical Services, accepted our proposal and we were granted permission to carry out dental education under the auspices of Friends of the Children’s Hospital. We have now been doing this for three years on a purely volunteer basis, reliant on the generosity of many dental sponsors. The project has evolved from humble beginnings in scrubs donated by Medicrost Tokai with our ‘Learner’ wings, to full-blown fairy princess dresses donated by Elise Tanner from the American ToothFairies, when we initiated contact prior to the IFDH 2013 Congress in Cape Town. The fairy dresses have allowed us to break the ice with many children as well as made us a very visible presence to parents and medical staff alike. The generous donations by Wrigley’s Orbit of sugar-free gum also contribute to our popularity.

Our stats last year showed that approximately 41% of the children we meet are under two. Many parents report that they have not started brushing by age one, despite many already having six to eight teeth by this age.

Of the children, 27% are between two and six years old. This group represents opposite ends of the spectrum — from many children having never met the dentist to those who have had extensive extractions under GA. It is a huge challenge to reinforce the importance of primary teeth when most parents think “it’ll all be fine once the permanent teeth arrive”. We hope that the information we pass on has more far-reaching impact than just the initial parent or child contact and that the dental message is spread to family, friends and teachers.

Last year, thanks to Ivodent (Gum Sunstar), we were also interviewed on radio and articles were run in the local press and again for Oral Health Month in September, getting the all-important primary healthcare message out to the public. Initiatives for World Oral Health Day, which included fantastic templates to make your own posters, enabled us to make posters of some of the children in hospital, thereby adding a more personal touch to our last big brush hand-out in March 2016. We would encourage all within the dental community to take advantage of the many online tools as well as initiatives, such as Colgate’s ‘Bright Smiles, Bright Futures’, to reach out to their local community. All it takes are a few hours to make a small difference that can have enormous impact on the oral health of all South Africans.

We are really honoured to have been recognised by the IFDH and The Global Child Dental Fund with the Social Responsibility Award 2015 (3rd Place). Around the world primary care dental education is crucial in reducing DMFT’s in children and future edentulousness in populations. The sustainability of any programme remains a challenge. The ToothFairies are currently reliant on Susan and I being available to carry out the sessions and on the continued goodwill of the hospital. We would welcome any practitioners wanting to embrace their inner fairy!

Local dental suppliers and their Western Cape area reps have been very generous and supportive to date, some donations arriving just in time before we run out. In future, we may have to expand our sponsorship beyond the South African dental community who are directed by global dental trends and planning which may differ from what we see in practice.

The ToothFairies have big dreams. The Red Cross War Memorial Children’s Hospital Dental Unit consists of two chairs in one room (orthodontic type lay out) and is staffed by a Western Cape Government team for mornings only. They have worked hard to reduce waiting times for treatment and provide continued long-term maintenance. Coming alongside them as educators, we hope to highlight the service they provide within the hospital. The hospital is constantly upgrading and we would love to see this unit expand and transform into a more user-friendly paediatric dental space with brushing stations for education, more private treatment areas and a fun and welcoming reception space.

Dental decay is not going away. Will the implementation of ‘Sugar Tax’ result in long-term improvement in decay rates? Time will tell. We look forward to the future of dentistry in South Africa and hope that in our small way we will have contributed to spreading the message of the importance of prevention in the community that relies on the Red Cross War Memorial Children’s Hospital for treatment.
The Bachelor of Oral Health 111 and the Bachelor of Dental Surgery, Class of 2015, took the Hippocratic Oath on 11 December 2015 and were successfully capped at the Annual Graduation Ceremony on 16 April 2016.

Top achieving students in academic excellence and distinction in the clinical domain, oral health promotion and professional conduct, were awarded prizes sponsored by the Dean of the University of the Western Cape’s Faculty of Dentistry, professional organisations (OHASA, SADA) and dental traders which include, among others, Colgate, GSK, Ivodent, Johnson & Johnson. We celebrate the achievements of our students and wish them every success on their career trajectories.

The Faculty of Dentistry at the UWC strives to support and showcase student initiatives and achievements. The Dental Faculty Research Day is an annual event in which under-graduate and post-graduate dentistry and oral hygiene students present their research conducted as part of their curriculum. The event includes a competition and an award for the best research presented. The winner is afforded an opportunity to present at the local IADR and compete for the research prize in this forum. This year the Dental Faculty Research Day was held on 12 May 2016. The prize was won by an Oral Hygiene student, Ms Siza Ndwandwe.

Dental partnerships are also valued at the UWC. Colgate conducted an educational presentation for our students. Educational programmes and detailing occur throughout the year by dental traders.

The UWC has partnerships with all dental traders who contribute to student learning through the provision of lunch and learning sessions, educational materials and dental samples. We are grateful to all sponsors who continually strive to engage and collaborate with educational institutions in preparing students to be skilled and competent dental graduates. These include GSK, Ivodent, Colgate, Johnson & Johnson, Prime Dental, and Wright Millners (Oral-B).

On this note, the Faculty of Dentistry at the UWC would like to pay tribute, thank and acknowledge Barbara van Wyk from Johnson & Johnson for her unselfish commitment to the UWC Dental Faculty staff and students. May her journey forward be rewarding and her dreams fulfilled.

The UWC also strives to engage in life-long learning and continuous professional development for its graduates and other professionals. The Faculty of Dentistry, Oral Hygiene Department, will be hosting two short courses pertaining to the expanded scopes of practice for oral hygienists. The courses will address the Scopes of Practice promulgated in 2000 and 2013. Course 1 (2000) will take place from 18 July to 29 July 2016. The cost is R4500. Course 2 (2013) is proposed to take place from 29 November to 3 December 2016. The cost is R4500. The courses will include theoretical presentations, practical training and readings, tasks and assessments.

Minimum entry level requirements: Diploma in Oral Hygiene (Dip OH) for registration of Course 1. Oral hygienists who have completed the 2000 Scope of Practice may apply for registration of Course 2.

Course and registration details will be available on the following platforms: OHASA website, OHASA Journal, UWC (eluckhoff@uwc.ac.za).
EASTERN CAPE NEWS

OHASA Eastern Cape had its first one-day CPD Seminar on the 23rd of April at the Radisson Blu hotel in Summerstrand, Port Elizabeth. It was well attended by dentists, oral hygienists, dental therapists, dental technicians and dental assistants. Practitioners from as far as Plettenberg Bay and King Williams Town attended.

Delegates were treated to very informative clinical lectures by Dr Paul Brandt, ‘All our patients want a beautiful smile’ and ‘Modern treatment options for tooth hypersensitivity’; Dr Robin Reid, ‘Orthodontic problems in the mixed dentition’; and Dr Herman Kruger, ‘Management of challenging cases in maxillofacial surgery’. Stella presented on ethical issues, ‘Waste management in the dental practice’.

It was a good day of learning and catching up with colleagues and company representatives.

Thank you to the dental traders who exhibited on the day: Colgate, GSK, Implant Support Services, Oral B and Wright-Millners. Your support makes our CPD seminars possible. Lucky draws were sponsored by Colgate, Oral B, J&J, Wright-Millners and Southern Implants’ representative, Noekie Grobler.

To the speakers of the day: A big thank you for sharing your knowledge with us and taking the time to travel to us. It is truly appreciated!

Our next seminar is booked for the 10th of September at the Radisson Blu hotel.

GAUTENG NEWS

SCHOOL HAND WASHING PROJECT

National Hand Washing Day was on Thursday, 5 May 2016. To celebrate this day, a school project was launched at Silverton High School to highlight the importance of washing hands and to explain the correct procedures. With the aid of sponsorship from Dr S Barnes and Dr M Lavarinhas, we were able to purchase enough D-Germ to donate a bottle to each teacher to place in their classroom. We were also able to purchase additional 5lt bottles to refill the existing classroom bottles.

Sister Willemien Labuschagne from the University of Pretoria, Oral and Dental Health Faculty, agreed to give a presentation to the teachers and learners, with a complete demonstration of the correct hand-washing routine. Sister Willemien supplied various visual aids to the school, which was accepted with much gratitude.

Zeldine Stander and Erika van Staden would like to thank each and every person who contributed to this endeavour and hope this will inspire other branch members to take the same initiative next year.
OHASA WC had a very successful start to its 2016 year. We started off with our annual Breakfast Meeting on the 27th of February 2016 at Burnley Lodge, Crawford. We had the privilege of having Mrs Aisling Foley from the Home of Hope with us for the morning. The topic was ‘Foetal Alcohol Syndrome’ and she greatly added to our delegates’ knowledge regarding this situation and gave us some insight into the Home of Hope Foundation.

The clever people always say “a change is as good as a holiday”. For our first full-day seminar, the Exco decided to change the venue from the UCT Medical Learning Centre to the Durbanville Conference Centre in the heart of the northern suburbs of Cape Town. We had 185 delegates attending this successful seminar. A range of speakers, from private practice to public health, came to address our delegates.

We decided that we want to give donations to the Home of Hope Foundation. All delegates were very generous. The donations were delivered by one of our committee members, Elna van der Ham, to the Home of Hope the day after the seminar.

On behalf of the OHASA WC committee members and branch members, we want to thank our sponsors Oral B, GSK, J&J, Colgate and Ivodent, for sharing our seminar with us. To our special speakers, thank you for sharing your knowledge.

On behalf of myself, the branch and CPD committee, I want to thank OHASA Western Cape members for their loyal support.

Cape Town Greetings
Gail Smith (WC Chairperson)
Oral-B has been a familiar brand for generations thanks to its efforts to improve oral health the world over. The scientists behind the brand are responsible for many advances in the field of oral health, including the introduction of sodium fluoride in toothpaste and the development of the world’s leading range of toothbrushes.

The brand’s ethos, and to a large extent its success, is grounded in its thorough understanding and appreciation of the consumers it serves: their needs, attitudes and behaviours. The following report, conducted with global research partner TNS, is one example of such activity.

Oral-B’s aim in conducting this report was to garner a deeper understanding of the true state of oral health in South Africa from three perspectives: how important oral health is to South Africans, the personal and economic implications of poor oral health, and whether current behaviours and levels of personal care are proportionally sufficient.

Anecdotal evidence and testimonies offered in focus groups suggest that although South Africans believe that good oral health is both important and an attractive trait in others, current levels of care are insufficient. This report aims to shine a light on that disparity in order to shake complacency and inspire better self-care, but also to congratulate and encourage the population in the esteem in which they hold good oral health and help find relevant ways to assist them in their goals.

**KEY FINDINGS**

- **Oral health is important to South Africans but engagement in the category is low:** Despite 98% of South Africans claiming their oral health is important, almost two thirds (64%) choose a toothpaste without researching the benefits. Habit, not research, dictates their toothpaste purchasing.

- **The prevalence of oral health issues among South Africans is high and the resultant implications are not limited to the patient’s mouth:** An astonishing 94% of South Africans have suffered from an oral health problem at some point and they could spend R13,375 over the course of their lifetime resolving preventable oral health problems and missing work hours.

- **The majority would be willing to spend more money on a toothpaste that was scientifically proven to be better than what they currently use:** While the majority of consumers (59%) believe they are using the best product for their oral care needs, the prevalence of oral care issues leaves most South Africans open to trying something new should it be proven to be better or recommended by their dentist.

**EXECUTIVE SUMMARY**

- **South Africans highly value their oral health and perceive the maintenance of good oral health to be as important as diet and exercise**

  - 98% of South Africans say they value good oral health highly
  - 96% of South Africans say that maintaining good oral health is as important as maintaining a balanced diet and regular exercise

- The data show that South Africans could be doing more to improve and protect the health of their mouth and that poor oral health has implications beyond the conditions of their mouth

  - 69% of South Africans have suffered a preventable oral health problem in the last year
  - 39% of South Africans have taken time off work in the past year for preventable oral care issues
  - The average South African will spend R13,375.50 in their lifetime resolving preventable oral health problems
  - South African women spend 3x longer researching a face cream than researching the toothpaste that is best for their family’s health

- **South Africans are prepared to spend more for better oral health**

  - Choice of toothpaste is most frequently based on habit versus recommendation or research, yet the majority of consumers believe they are using the best product on the market
  - In spite of this, 88% would be prepared to spend more money on a toothpaste that was scientifically proven to protect our family’s oral health better than our current toothpaste
CHAPTER 1 – IMPORTANCE OF ORAL HEALTH

Having good oral health is overwhelmingly important to South Africans. Almost all (98%) respondents said that oral health is important to them. Furthermore, 96% said that maintaining good oral health is at least, if not more, important than maintaining a balanced diet and regular exercise.

Oral health also plays an important part in one’s self-confidence as the majority (74%) of respondents said they believed that improving their oral health would make them feel much more self-confident. In fact, tooth loss is second only to weight gain in consumers’ concerns about their own appearance.

Similar attitudes were expressed towards others with oral health issues. South Africans are more likely to notice and are more likely to be attracted to a new person’s smile than any other attribute and 17% believe that tooth loss is the biggest sign that a person is neglecting their wellbeing.

CHAPTER 2 – CURRENT STATE OF ORAL HEALTH

When asked if they had ever suffered from any common oral health problems, nearly all respondents (94%) have indeed experienced these issues. From a list including sensitivity, cavities, tooth ache, receding or bleeding gums, tooth loss or other issues, only 6% answered that they had not, with 69% saying that they had experienced at least one of the listed issues in the last 12 months. The most common issues experienced in the last year were sensitivity (25%), tooth ache (19%) and cavities (15%). Even with such a prevalence of oral care issues, only 56% of South Africans have visited their dentist in the past year.

The cost of putting right such oral health problems can be significant, as the average sum paid in the last year to resolve these largely preventable issues was R339 per person. Over a course of a lifetime, this equates to R13,375 spent reversing issues which could be avoided through better care. In the past year alone, close to 20% of South Africans have paid in excess of R1,000 to address their oral care issues.

Preventable oral health issues do not just have an impact on the individual’s finances. More than two thirds of respondents have taken off work in the past 12 months due to the symptoms of oral health issues, or to receive treatment, which has implications to employers and the economy as a whole.

And although many admit to not brushing or visiting the dentist as frequently as they should, South Africans seem confident that they are taking the best possible care of their teeth, with a majority (88%) claiming they are confident that they are taking the best possible care of their teeth.

CHAPTER 3 – ATTITUDES AND MOTIVATIONS

In spite of the high frequency of oral health symptoms amongst the population, 59% believe that they are currently using the toothpaste on the market. When asked why they use their current toothpaste the majority state “Habit; I’ve bought the same toothpaste for years”.

Recommendations from friends and family were the least frequented source of information which diverges from the trends seen in other toiletries and personal items where such peer to peer recommendations are common. This perhaps suggests that oral health and oral care in particular are not topics regularly discussed socially in spite of their apparent importance to the sample.

While a majority of consumers are at least somewhat confident that they doing what’s best for their oral health, almost a third of consumers are unsure if their current toothpaste is improving their oral health. A significant 9% said that they were not confident that their toothpaste is the best available, yet continue to use it regardless. Despite this uncertainty, South Africans do not seem to invest a proportionate amount of additional time researching the most appropriate product for their needs. On average, those surveyed spent just 2.32 minutes choosing which toothpaste they should use and 64% say that they have not researched toothpaste at all in the last 12 months.
CHAPTER 4 – ABILITY TO INFLUENCE HABITS

Despite a low level of engagement in the category, the majority (81%) were at least moderately likely to change brands if dental professional recommended an alternative. And if scientific proof was offered, the majority (88%) would not only be willing to switch products, but also to spend more on a toothpaste that was shown to protect their family’s oral health better than their current product.

When asked how much they would be prepared to spend on a tube of toothpaste that was scientifically proven to make their teeth healthier the average price stated was R32.98, compared with the average R23.7 currently spent on toothpaste; a 39% increase.

There is reason to believe that South Africans would be willing to spend more on their oral care products given that 66% of South Africans spend over R50 per month on health supplements, compared to an average spend of just R36 on oral care, even though 41% do not feel any difference with supplement usage.

CHAPTER 5 – COMPARATIVE HABITS

There seems to be an inconsistency between the time and money invested in oral health and the importance South African’s claim it plays in their lives. This disparity is most starkly seen when comparing oral health to other areas of consumer health and fitness.

Even though consumers state how important their oral health is to them, and in spite of the impact of a smile in making first impressions, South African women will still spend considerably more on their cosmetics than they do on protecting and maintaining their oral health. 40% of women spend more than R100 each month on make-up products and yet the average total spend on oral care products is just R36.
And although a person’s smile seems to have greater significance in attracting a mate than physique, South Africans spend almost five times more on maintaining their personal fitness than they do on their oral care. The average spend on personal fitness is R164.50, a figure which includes all of those who are not members of a gym.

Two thirds of South Africans spend over R50 each month on supplements (compared to an average spend of R36 on oral care) even though only 41% said they felt a noticeable difference after taking these supplements.

Perhaps most significant is the difference between time spent researching the most appropriate face cream compared to the best toothpaste. On average, consumers (including the men) spend 6.81 minutes each month deciding which face cream to buy compared to 2.32 minutes on toothpaste. That is almost three times as long. When looking at the most engaged in each category, one in five women spend more than 20 minutes researching their face cream but only 4% do the same for their toothpaste.

CHAPTER 6 – CURRENT ORAL CARE HABITS AND PRACTICES

In one section of the study, participants were asked a series of questions about their current oral health habits, including home care and visits to professionals.

Product usage

The research suggests that across the demographic groups the importance of brushing teeth regularly with toothpaste is widely understood. 74% of those surveyed adhered to the general recommendation of brushing teeth with toothpaste at least twice a day. While manual brushes are the most common choice by a significant margin, almost a quarter of the respondents use an electric toothbrush at least some of the time.

Visits to the dentist

While the vast majority say that their oral health is important to them the frequency of dental check-ups is comparatively low. 42% said that they had not visited a dentist in the past 12 months, and furthermore, half of those who did visit a dentist did so because of a specific problem, rather than for a regular check-up.

Spend

On average the participants estimated that they spend R36 each month on their total oral care, including toothpaste, mouthwash, floss and toothbrushes. When asked about individual categories spending averaged at R23.7 on toothpaste, R20.65 on toothbrushes, R10.84 on floss.

Survey method

Sample

This report presents the findings of a nationally representative survey of 1,000 male and female South Africans who live in South Africa and are the primary oral care shoppers, aged 18+.

Questionnaire dates, method and timing

All surveys were conducted online and administered by TNS in April 2014.

For more information please contact: Hannah Robbins – Hannah.robbins@mslgroup.com
INFORMED CONSENT

1. Informed consent is the moral and legal obligation of the professional to ensure that a client fully comprehends and evaluates the pros and cons associated with proposed treatment.
   a. True
   b. False

2. By disclosing all information and ensuring understanding, the following is obtained:
   a. The patient is directly invested in his/her own treatment
   b. The patient is empowered to take accountability of his/her own health
   c. Improved health outcomes
   d. a and b
   e. a, b and c

3. Effective communication improves doctor-client rapport and inspires trust and confidence in the client, thereby supporting the core value of societal trust.
   a. True
   b. False

4. Informed consent is important because it:
   a. Supports the patient’s right to autonomy
   b. Provides the professional with legal and ethical justification
   c. Provides patients with control over the amount of information they receive
   d. All of the above
   e. None of the above

5. A patient must provide verbal, informed consent for inclusion in a case study and use of clinical photographs and/or radiographs.
   a. True
   b. False

6. The duty of the professional to honestly disclose information pertaining to diagnosis, the pros and cons of applicable treatment options and prognosis in the absence of treatment is:
   a. Informed consent
   b. Veracity

7. The sociocultural and economic context of each patient may create vulnerabilities, which predispose the patient to take decisions that they would not normally contemplate.
   a. True
   b. False

8. When providing the patient with information, the following is important:
   a. Social history and medical/dental IQ of the patient
   b. Health beliefs and practices of the patient
   c. The patient’s primary language
   d. a and b
   e. a, b and c

9. When a patient employs a blunting coping mechanism, full disclosure should not take place.
   a. True
   b. False

10. A treatment plan that is changed without obtaining consent equates to:
    a. Nondisclosure
    b. Deception
    c. Forcing treatment on a patient
    d. All of the above
    e. None of the above

UNANTICIPATED TREATMENT COMPLICATION AND LEGAL RECOURSE

11. Mistakes turn into negligence:
    a. When it is confirmed by a body of expert opinion that they are harmful
    b. When the mistake did not conform to good professional conduct
    c. When failing to exercise reasonable skill and care
    d. a and b
    e. a, b and c

12. Negligence is defined as the omission to do something that a reasonable person, guided by those considerations which ordinarily regulate conduct of human affairs, would do.
    a. True
    b. False
13. Legal action can succeed when it can be proven that:
   a. The dentist owed a ‘duty of care’ to that patient in the prevailing circumstances
   b. There was a breach of duty and damage was sustained as a result
   c. a
   d. a and b

14. Rendering appropriate clinical care (maleficence) requires effective communication and failure to do so can result in harm to the patient (beneficence).
   a. True
   b. False

15. Moral and legal principles define what makes a good dentist.
   a. True
   b. False

16. Information regarding treatment includes:
   a. Range of diagnostic procedures and treatment options available
   b. Benefits, risks, costs and consequences associated with options
   c. User’s right to refuse care after having received explanations of the implications, risks and obligations of such refusal
   c. All of the above
   d. None of the above

17. Informed consent is an ethical and legal requirement and any coercion negates the voluntariness of the obtained consent.
   a. True
   b. False

18. A patient can sue a clinician despite the informed consent provided.
   a. True
   b. False

19. To prevent possible disagreements and miscommunication, the following may be useful:
   a. Invite the patient to get a second opinion if need be
   b. Keep concise records, written notes and radiographic imaging
   c. Investigate and address unusual postoperative symptoms
   d. a and c
   e. a, b and c

20. Should complications arise, the clinician should show empathy and concern toward the patient and pursue effective two-way communication.
   a. True
   b. False
One recommendation.
A lifetime of oral health.

Recommending Oral-B® Power toothbrushes can help your patients reach their long-term oral health goals. That’s because the unique small round brush head design and the oscillating-rotating cleaning action ensure a superior clean in hard-to-reach areas, versus a regular manual brush. Together with your brushing instructions, we can make the difference.
“My sensitive teeth take the pleasure out of eating and drinking.”

Steven has struggled with acid reflux and exposed dentine for many years.

70.4% of dentine hypersensitivity sufferers like your patients say they experience the same daily functional restriction as Steven. Help patients like Steven by recommending Sensodyne Complete Protection with stannous fluoride: it restores a robust layer over and within exposed dentine tubules, provides clinically proven relief and all round oral care for your patients with dentine hypersensitivity.*

Help your patients live life more free from the impacts of dentine hypersensitivity.* Visit sensodyne.com

*These patient stories are for illustrative purposes only.


Prepared: May 2016. GCSAEXXXXXXXXXXXXX