Interview: “Around 50 per cent of children have cavities by 6 years of age”

By Brendan Day, DTI

With recent studies showing that more than four out of ten Australian children aged 5-10 have cavities affecting their primary dentition, it is clear that good oral health habits need to be practiced from a very early age. Given that oral disease can cause potentially permanent damage, a preventative approach is essential. Dental Tribune Online spoke with Prof. David Manton, Chairman of the Australian Dental Association’s Oral Health Committee, about the importance of dental check-ups for children and why recent legislative changes in Australia may negatively affect this.

Dental Tribune Online: Prof. Manton, how many times should children be visiting the dentist each year?
Prof. David Manton: The regularity of visiting the dentist for children depends on their oral health. To start with, a child should visit a dentist within six months of the eruption of the first tooth, so around 12 months of age. This is to allow the dentist to examine the child’s mouth and discuss with the parents how to maintain their child’s oral health. This would include issues such as diet and oral hygiene. After that, the time between visits usually varies between six and 12 months, although some children may visit more frequently, such as a child at high risk of dental caries.

What are some of the main contributors to the poor oral health of Australian children? The main factor affecting oral health in children is dental caries. Around 50 per cent of children have cavities by 6 years of age. The main causative factor is diet—primarily the regular consumption of sugars in the diet. These sugars can be obvious, like sugary sweets and lollies, but can also be hidden in food and drinks, such as soft drinks, dried and processed fruits, soy drinks and flavoured milk. The sugars encourage the overgrowth of decay-causing bacteria in the plaque on the teeth, and these produce acids that weaken the teeth and lead to caries.

Brushing teeth with fluoride toothpaste decreases the amount of decay that occurs and improves gingival health, so a lack of brushing can lead to the opposite. Around one sixth of children will have teeth affected by developmental defects that may lead to an increased risk of decay, so early detection of these defects can help prevent caries developing.
Researchers find link between oral bacteria, cerebral microbleeds and stroke

By DTI

KYOTO, Japan: Cerebral microbleeds (CMBs) have attracted attention as a potential risk factor of cognitive impairment associated with the brain detected CMBs in 73 participants (26 per cent). As for the dental examination, 91 per cent of the participants had dental caries and 28 per cent scored a Code 3 or higher on the teeth and gingivae. That is why early detection of disease risk and prevention before such damage occurs is so important.

Aiming to understand the clinical significance of CMBs and the mechanisms of their production, researchers from Kyoto Prefectural University of Medicine examined 279 patients (average age of 70) for the presence or absence of the collagen-binding surface Cmtn protein expressed on cnm-positive S. mutans in the saliva. In addition, cognitive function, dental health status and the prevalence of CMB were assessed. Oral examination included the number of remaining teeth, presence or absence of dental caries, and periodontal status of the participants.

In the study group, 4.9 per cent tested positive for S. mutans and 33 per cent scored a Code 3 or higher on the teeth and gingivae. Those with CMBs had a statistically significant higher percentage of S. mutans and higher occurrence of deep caries lesions than those without. Furthermore, the percentage of dental caries patients was significantly higher in the collagen-binding activity group, the study found.

According to the researchers, the findings suggest a molecular mechanism for the interaction between chronic oral infections and geriatric disorders, such as stroke and cognitive impairment. In order to clarify the causality, an intervention study focused on oral care and the microbiota in CMB subjects would be of interest, they emphasised. As the current data supports the important influence of the oral microbiota on neurological disease, they further called for improved collaboration between dental and medical researchers.

The study, titled “Oral cnm-positive Streptococcus mutans expressing collagen binding activity is a risk factor for cerebral microbleeds and cognitive impairment”, was published online on 9 December in the Scientific Reports journal.

Interview: “Communities without fluoridated water have a higher incidence of dental caries”

By DTI

CAIRNS, Australia: Once a mandatory measure, the fluoridation of local water supply in Queensland is no longer compulsory due to legislative measures put in place between 2012 and 2014. Due to pressure from anti-fluoridation campaigners, many local councils have chosen to abandon the addition of fluoride to water, despite its proven health benefits. Professor John Abbott is the Director of Clinical Dentistry at Cairns’ James Cook University and he recently spoke with Dental Tribune Internation about this on-going issue.

DTI: What prompted the Queensland Government to make the fluoridation of water supply non-compulsory?

Professor Abbott: On 1 December 2007, the Labor government’s Premier, Anna Bligh, made it mandatory that all water supply in Queensland be fluoridated. However, in November 2012 the Liberal Party government reversed this decision. The reversal seemed to stem from consideration of the greater area that is called regional Queensland. There are many communities in Queensland, including far north Queensland, that never had fluoride in their water supply and there was quite a bit of unrest that water fluoridation had been forced onto these communities.

What benefits does water fluoridation present?

Fluoride in the water supply is considered by tertiary dental schools to be a very good public health initiative. There is clear evidence that long-term exposure to an optimal level of fluoride results in diminishing levels of dental caries in both children and adult populations. The level of fluoride in drinking water supplies is also just 1.5 parts per million (ppm).

Which groups does non-fluoridated water affect most?

Simply put, communities without fluoridated water have a higher incidence of dental caries. There has been some discussion on ‘alternative solutions’ to compulsory wafer fluoridation. What type of solutions would these be and what limitations do they have?

Alternatives to fluoridated water include toothpaste and fluoride added to bottled water. The best-case scenario is the actual incorporation of fluoride into developing teeth in utero, by the mother drinking fluoridated water. This enables fluoride to be incorporated into the developing teeth so that, on eruption, they are strongly protected against acid attack and dental caries.

Bottled fluoridated water could be used in schools, but would require extensive management of the programme, which may be costly. Fluoridated toothpaste from the supermarket contains around 1000ppm of fluoride, but most of this is washed down the sink with vigorous rinsing of the teeth after brushing.

Are there currently any incentives for councils to fluoridate their water supply? As far as I am aware, there are currently no incentives for councils to do this.

Professor Abbott, thank you for speaking with us.
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* When toothpaste is directly applied to each sensitive tooth for 60 seconds.
† Containing 5% potassium nitrate and 1450 ppm fluoride as sodium fluoride.
‡ Containing 1450 ppm fluoride as MFP.

References:
I love it! A personal story by Dubai dental hygienist Raheleh Mahtabpour

I have always been very passionate about dental hygiene education and spreading oral health and hygiene awareness in schools in Dubai. Not only do I love the interaction with my patients, but I also continue to learn from them and with them every day. One topic has been of particular importance to me: individually trained oral prophylaxis. A healthier and happier life can be achieved through proper oral hygiene—if one knows how to do it.

By Marc Chalupsky, DTI

I have been a dental hygienist for over 14 years. Originally from Iran, I started working in a clinic specializing in implantology and periodontics. After a while, I moved to Dubai to work at the Department of Health and Prevention in the UAE. I was with them for almost five years. Gaining excellent expertise and experience with students. But I wanted a change, so I moved to the largest dental clinic in Dubai.

After six years of working in a private clinic, I decided to take a short break, so moved to Canada for a while and experienced motherhood. I came back to Dubai with a new addition to the family.

I finished my degree in Iran 16 years ago. Iranians are hungry for new things related to dental hygiene and dentistry. Programmes there range from two to three years. After that, dental hygienists need to spend at least two years in the hospital before becoming a qualified professional. The schools in Iran ensure that we gain a great deal of exposure to patients. This might sound a bit biased, but when I came to Dubai, I saw myself as being a little bit more prepared than the other hygienists I met. Patient interaction and experience have always been very important.

Dental hygiene treatment in Iran is not different than in the rest of the world. We do the scaling, polishing, whitening and charting. In fact, we care about charting a great deal. We usually work with periodontists and our profession is truly appreciated. Oral hygiene does not only affect one’s teeth; it also influences a person’s overall physical and emotional health. By imparting good oral hygiene habits, we help patients live healthier and happier lives.

Today, I work at Dr. Michael’s Dental Clinic in the heart of Dubai. I think that the clinic is one of the most beautiful private practices. We have three clinics, one for orthodontics, one for general dentistry and one for paediatrics. Our clinic is surrounded by gardens; we have a beautiful atmosphere in the clinic. All of our patients feel welcome immediately.

My daily morning fun

Daily work starts at 8 a.m.: in the morning, I take my daughter to kindergarten and then go to the clinic. I start preparing my brushes and my room. When the first patient comes in, I immediately begin discussing oral hygiene.

The session starts with photographs. I then do the overall check-up and cancer screening, checking for anything abnormal and informing the dentists if necessary. After that, I perform 15–20 minutes of ultrasound scaling and follow with hand scaling and polishing. Appointments usually last 1 hour. In fact, I taught the probing and charting in a separate appointment. The hygienist and dentist work closely together, discussing cases and referring patients to each other.

I love it!

I love the daily interaction with my patients. I have learnt so much from my patients and made many new friends. At the same time, I do my best to teach them about oral hygiene and how it can affect their health. I enjoy seeing my patients smile.

This is especially rewarding, as a large number of patients in the UAE do not know how to floss and brush properly. Even worse, many patients are referred from dentists who advised them to buy a medium toothbrush. I then show them the benefits of a soft toothbrush and explain that failure to use the correct brushing technique leaves plaque around the teeth, leading to cavities and even gingival infection. One of my favourite pieces of information continues to be: "Yes, you can remove bacteria and biofilm with a soft toothbrush.”

In Iran, many patients only go to the clinic when they already have a dental problem. In the UAE, there are many patients with poor oral health. Furthermore, there are many smokers, and judging from the oral health of many patients, they certainly like to eat sweets and drinks sugary beverages. Patients usually come to the clinic when it is too late. This is even the case with children.

That is why I usually see my patients twice a year, because most insurance covers these visits. Sometimes, I see my patients again after two months or two weeks. I then ask them to bring their toothbrushes, which we will check together.

I am still in love

About ten years ago, I started ordering many toothbrushes and interdental brushes from the Swiss brand CURAPROX and introduced them to my patients. One day, a representative approached me and told me more about individually trained oral prophylaxis (ITOP). I attended the initial training programme—and loved it! After attending four more ITOP seminars in Prague in the Czech Republic, I am still in love. I feel every dentist and hygienist can benefit from this. In the second ITOP programme, I practised brushing, but I continued to use a little bit too much pressure. It was evident to me that we as dental hygienists need to continue to train. Through attending the ITOP courses, I learnt the right technique and now know that soft toothbrushes are the best products for proper cleaning.

ITOP teaches the following: interdental brushes first, then dental flossing. Many of my patients do not like to floss; they see bleeding and stop. Interdental brushing, however, is easier and more convenient. One has to help our patients to gingival bleeding—and most of them think it is normal.

Today, I am a proudly certified ITOP instructor and will continue to travel to Prague to learn more for the benefit of my colleagues and patients. I simply love being a dental hygienist and dental educator. Please let us spread the word the way together.
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Worldwide, 60–90% of school children will develop dental problems by the age of 12 years old, and nearly 100% of adults have dental cavities, often leading to pain and discomfort.

**One dental trauma**

Across the world, 16-48% of children in the age range 6 to 12 years old are affected by dental trauma due to unsafe playgrounds, unsafe roads, sports, accidents, or violence.

**Noma**

Noma is a gangrenous lesion that affects young children living in extreme poverty primarily in Africa and Asia. Lesions are severe gingival disease followed by necrosis (permanent death of cells in living tissue) of lips and chin. Many children affected by noma suffer from other infections such as measles and HIV. Without any treatment, about 90% of these children die.

**Cleft lip and palate**

Birth defects such as cleft lip and palate occur in about one per 500–700 live births. Cleft lip and palate are caused by failure of the first and second pharyngeal arches to fuse during the critical period of 21–50 days after conception. These defects occur during the 20–24 days when the embryo is most sensitive to environmental factors. The majority of these children die. They are not experiencing pain, their teeth may not heal completely and may cause expensive, long-term problems.

**Impacts of poor oral health on physical, social and emotional health**

Tooth decay is an infection caused by bacteria that are transmitted via saliva. Without proper care, the infection progresses to become a cavity and maybe an abscess, thus not just affecting the tooth but the rest of the mouth and even the rest of the body, leaving the child prone to many other childhood infections such as ear or sinus infections.

When we develop cavities between the teeth, sometimes we have to go through a procedure called painless caries treatment. This treatment option as part of new technology allows dentists to prepare the surface to accept the resin infiltrant through the perforated plastic sheet, which entails infiltrating a preparation gel and then a liquid resin through a perforated plastic sheet between the teeth, allowing dentists to treat cavities without administering local anesthesia or drilling, which is conventionally unavoidable to access the cavity.

Dental cavities are a common problem faced by school children. In the United States, about 22% of school children ages 6–19 have dental cavities. Children who have untreated oral diseases or injuries can suffer from inadequate nutritional intake, impaired growth and development, speech problems from missing teeth, or poor self-esteem.

**Planned Services to be offered in School-based Dental Program**

In-school-based dental programs provide preventive dental care services aimed at children. Programs may provide services in school with stationary equipment, in a room in the school building using portable equipment, or in mobile vans parked at the school. Four common school-based dental services model include:

1. **Dental screening programs**: Students in any age group may be referred. No treatment is provided at the school, thus, students with dental needs can be referred to a local dental clinic.

2. **Dental sealant programs**: Dental sealings are done and sealed. Students in any grade are selected (typically 2nd and 6th grades) to receive the treatment. No payment is required. Students will be seen. To ensure that all children who sign up for the program receive treatment, we must present paperwork to the school looking for words such as “time allows” or “as time permits.” These words often indicate that the program is scheduled to be at the school for a set number of days even if not all the children who are signed up for care can be seen.

3. **Dental preventive services program**: The provided services include screening, prophylaxis (cleaning), fluoride treatment, and sealants. This type of program will generally serve and benefit students in all grades.

4. **Basic preventive and restorative dental program**: This type of program would include the full range of preventive services such as basic fillings and simple extractions. Students in all grades are offered services.

**Follow-up and case management**

There are many questions, being asked by the school when we plan to conduct an Oral Health Program. Will the program be provided by the program or will the school be responsible for this? Who will address patient questions and concerns after treatment has been provided? All programs will encounter children who need restorative care. Case manager’s duty should be helping children and families find a dental home, locate dental clinics that will provide services to students. Also for uninsured students, ensure that appointments are made and kept, and make sure treatment plans are completed. All programs need to synchronize with dental offices so students can quickly receive needed care. Case management is important to ensure the child receives necessary restorative care.

The program should have a plan for following up on students with dental decay. It is important to have a clear understanding regarding who ultimately has the responsibility of following up with students and/or parents on needed dental care. In addition, the program has provided services at school, there should be established protocol for how parent concerns or concerns will be addressed.

How often and how long will the program be at school site for instance, once a year, every other year, or some other arrangement?

For better impact the program should be conducted at least once every year. The program’s length at the school can vary based upon the number of students needed to be seen. To ensure that all children who sign up for the program receive treatment, we must present paperwork to the school looking for words such as “time allows” or “as time permits.” These words often indicate that the program is scheduled to be at the school for a set number of days even if not all the children who are signed up for care can be seen.

Children are the future pillars of our nation. As a healthcare provider we should always contribute for a betterment of society. With this positive step we can improve awareness in our children and give them a happy and healthy smile.
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