

# BDJ Team

JUNE 2017

## **SOUR SWEETS AND TEETH**

# June 2017

**CPD:**  
ONE HOUR

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# Ed's letter



The 41st National Smile Month, which has been taking place since 15 May, encourages health professionals to spread positive oral health messages in their communities. At hospitals across Kent, Surrey and Sussex, dental professionals are training ward staff on the importance of oral health with the Mouth Care Matters programme. The programme evolved when it was discovered that many inpatients at East Surrey Hospital had very dry mouths and there was no consensus of opinion over where mouth care should be recorded. Today, 12 hospital trusts in the region have Mouth Care Leads - dental nurses, general nurses and speech and language therapists - who are training hospital staff in mouth care and helping to maintain the health and dignity of numerous patients.

**CPD:  
ONE HOUR**



One of National Smile Month's key messages is to cut down on how often you have sugary foods and drinks. In this issue of *BDJ Team* our verifiable CPD article looks at the links between consuming sour novelty sweets such as 'Toxic Waste', 'Brain Ulcer' and 'Brain Blasterz' and developing dental erosion. These sweets, say the researchers, are of particular concern because they contain high levels of free sugars and acids, and they are marketed directly at children.



Have you ever wondered what it would be like to get involved in researching a dental-related topic yourself? Then be sure to read my interview with dental hygienist turned researcher Susan Bissett this month. Susan describes the moment when she was given a research fellowship as like a 'lottery win, a life changing-moment'. Her enthusiasm and passion for research are infectious.

*BDJ Team* will soon be launching its own submission site for original research - watch this space!



Kate with Ruth Doherty, *BDJ* Senior Managing Editor, at the launch of National Smile Month 2017 in London



*Kate*

Kate Quinlan  
Editor  
k.quinlan@nature.com

bdjteam201790

## THE A-TEAM

**Cover**  
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**Editor-in-Chief**  
Stephen Hancocks OBE

**Editor**  
Kate Quinlan

**Production**  
**Art Editor:** Melissa Cassem  
**Production Editor:** Sandra Murrell  
**Digital Editions Production Controller:** Natalie Smith

**Advertising**  
**European Team Leader**  
- **Academic Journals:**  
Andy May, +44 (0)20 7843 4785,  
a.may@nature.com

**Publishing**  
**Publisher:** James Sleight  
**British Dental Journal**  
The Campus  
4 Crinan Street  
London N1 9XW

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## BOS UPDATES ITS GUIDANCE ON SUPERVISION OF ORTHODONTIC THERAPISTS

The British Orthodontic Society (BOS) has updated its guidance on the supervision of orthodontic therapists (OTs). More than 400 OTs have been trained and entered the orthodontic workforce in the last ten years and the number of OTs qualifying annually now exceeds the number of orthodontists completing postgraduate training.

The guidance is important to support the way that orthodontic teams operate in the workplace and also to underpin the training of both orthodontists and OTs. As the OT role has become more established, it's increasingly important for the guidance to help team members work both safely and in the most efficient way possible.

The key issue, said Simon Littlewood, a member of the working party responsible for updating the guidance and an orthodontic consultant, is that the OT must work to the prescription of an orthodontist. He said the prescription could be a verbal one or, if the orthodontist could not be present, there could be a detailed prescription in the patient's notes. The patient should never go for more than one appointment without seeing the orthodontist.

He said the role, which was introduced ten years ago, had been a valuable addition to the skill mix: 'The orthodontist can

focus on the diagnosis and treatment planning, while closely overseeing the OT undertaking the practical aspects of the treatment, which OTs are so well trained to undertake. These new guidelines are all about sensible, safe and efficient use of the skill mix in orthodontics, making appropriate use of the knowledge and skills of different members of the orthodontic team for the benefit of our patients.'

The original guidance was written by a BOS team when the role achieved recognition from the General Dental Council, and was first updated in 2012. This latest 2017 update is expected to be the touchstone for training of all orthodontic teams for a few years to come.

To view the guidance visit <http://www.bos.org.uk/Professionals-Members/Members-Area-Publications-General-Guidance/Information-and-Advice/General-Guidance/Supervision-of-Orthodontic-Therapists>.

*The 30th British Orthodontic Conference will be held in Manchester on 14-16 September 2017. Highlights this year include 'The Great Digital Debate'; Nigel Harradine speaking on 40 years in orthodontics; and lingual orthodontist Professor Dirk Wiechmann as Northcroft lecturer. <http://www.bos.org.uk/BOC-Manchester-2017>*

## Philips encourages dental hygienists to shine



Philips Oral Healthcare is showing its appreciation of dental hygienists and their commitment to improving the oral care of their patients through its new 'Shine On' initiative.

As the centrepiece of the campaign, Philips has launched a digital hub at [www.philips.co.uk/shineon](http://www.philips.co.uk/shineon) featuring video testimonials, industry news, educational resources and a Shine On sweepstakes with giveaways exclusively for dental hygienists.

Dr Maha Yakob, Global Director, Professional Relations & Scientific Affairs at Philips Oral Healthcare said: 'The idea behind Shine On is to celebrate dental hygienists and provide a platform for them to lift each other up, too. It's about taking pride in your profession and knowing you make a real difference in people's lives'.

Dental hygienists are invited to participate by sharing their own Shine On moments on social media, tagging their posts with #shineon and #philipssonicare. Their collective Facebook, Instagram and Twitter posts will help populate a social media feed on the Shine On website.

Philips is also supporting the initiative with trade show promotions, print and social advertising and outreach via dental hygienist bloggers.

[www.philips.co.uk/shineon](http://www.philips.co.uk/shineon)



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## BADN BACKS CALL FOR GENDER NEUTRAL HPV VACCINATIONS

The British Association of Dental Nurses (BADN), the UK's only professional association specifically for dental nurses and the largest DCP association, has backed the call for gender-neutral HPV vaccinations, following a survey by the HPV Action Campaign showing support for the campaign from members of the Faculty of General Dental Practice and the British Dental Association. The survey was published during World Immunisation Week (24-28 April) and as the Government's vaccination advisory committee (JCVI) decides whether boys should also be given the HPV vaccination.

An all-party open letter has been sent to Jeremy Hunt MP, the Health Secretary, urging him to ensure that the HPV vaccination programme is expanded to school age boys as well as girls.

Mick Horton, Dean of FGDP(UK) said 'The incidence of oral cancer has increased dramatically over the last decade, and over two-thirds of diagnoses are in men. HPV is a main causative agent, and the introduction of the NHS

vaccination programme for girls has led to a significant reduction in the prevalence of the virus among women. Yet with over 2,000 men a year in the UK diagnosed with an HPV-related cancer - of whom almost half will die from the condition within five years - it is clear that current measures are not working for everyone. The view of oral health professionals is resounding - many of these lives could and should be saved by also vaccinating boys against HPV.'

HPV Action is asking members of the public, especially the parents of boys, to sign an online petition demanding gender-neutral vaccination: <http://bit.ly/2nHaUul> and will be calling on all political parties to commit themselves to gender-neutral HPV vaccination during the General Election campaign.

BADN President Jane Dalgarno said: 'Cancer prevention is, or should be, a gender-neutral issue. I am asking all dental nurses to sign the petition, and to write to their own MPs, urging them to support this campaign.'

### *Dates for your diary: June*

#### **6 June 2017**

Periodontology for the dental team  
Location: Education Centre, Good Hope Hospital, Sutton Coldfield, 17:45 onwards  
Email: [pthornley@btconnect.com](mailto:pthornley@btconnect.com)

#### **9 June 2017**

Handling complaints and managing difficult patients  
Location: BDA, London, 10:00-16:30  
[www.bda.org](http://www.bda.org)

#### **10 June 2017**

Society of British Dental Nurses Annual Dental Nurse Symposium, 9:15-16:30  
<http://sbdn.org.uk/event/dental-symposium-organised-s-b-d-n/>

#### **16 June 2017**

An IRMER course in dental radiography and radiation protection, 10:00-17:00  
Location: Crowne Plaza Manchester  
[www.bda.org](http://www.bda.org)

#### **22-23 June 2017**

British Society of Periodontology Conference  
Location: London  
[www.bsperio.org.uk/events](http://www.bsperio.org.uk/events)

## BSDHT AND BADT COLLABORATE IN MISSION TO PROVIDE PRESCRIPTION-ONLY MEDICINES

UK dental hygienists and therapists have been given the green light by NHS England Chief Professionals Office to pursue its quest to be able to provide prescription-only medicines (POMs), specifically local anaesthetic, topical anaesthetic and fluoride varnish, to patients without first having to get a prescription from a dentist.

Over several months, the British Society of Dental Hygiene and Therapy (BSDHT) and the British Association of Dental Therapists (BADT) have collaborated to undertake a scoping process with NHS England assessing the need for use of further mechanisms to administer or supply POMs for dental hygienists and therapists.

BADT and BSDHT are pursuing exemptions to the Medicines Act. Exemptions would mean that a list of POMs would be specified in legislation for dental therapists and dental hygienists to administer or supply.

In the future, after necessary training, this means dental hygienists and therapists would be able to provide local anaesthetic and fluoride in their daily practice without a Patient Specific Directive (PSD) or Patient Group Directive (PGD), a huge leap forward for the profession.

The BSDHT and BADT commented: 'Many of us have experienced for some time the severe limitations in our inability to supply or administer local anaesthetics and fluoride varnishes without a prescription ourselves, leading to prolonged treatment

for patients and the physical and emotional impact that this has. These are not only restricting our professions' development but also our capability to provide the most timely and effective treatment for patients.

'Being given permission to finally move forward on this vital issue is fantastic news for our profession and ultimately our patients. However, this is the beginning of a long road that we need to follow with persistence and passion if we are to enforce this change.'

The BSDHT and BADT now need the considerable voice of dental hygienists and therapists to ensure they drive this vital change through and build their case of the need for the use of exemptions. They would like to hear how the inability to supply or administer certain medicines has so far impeded your ability to do your day-to-day job.

Have you had to send away a patient with incomplete treatment because you cannot get a prescription? Email [prescribing@bsdht.org.uk](mailto:prescribing@bsdht.org.uk) with your experience and the impact it had on you, your patient and your practice. Speak to your colleagues, find out if this has affected them and tell BSDHT/BADT about it and help them to work hard to provide evidence for the future of their wonderful profession.

It is anticipated that the project will take at least two years and the BADT and BSDHT will be fundraising via [www.justgiving.com/crowdfunding/SubscribeToPrescribe](http://www.justgiving.com/crowdfunding/SubscribeToPrescribe).

# Why didn't you tell me?

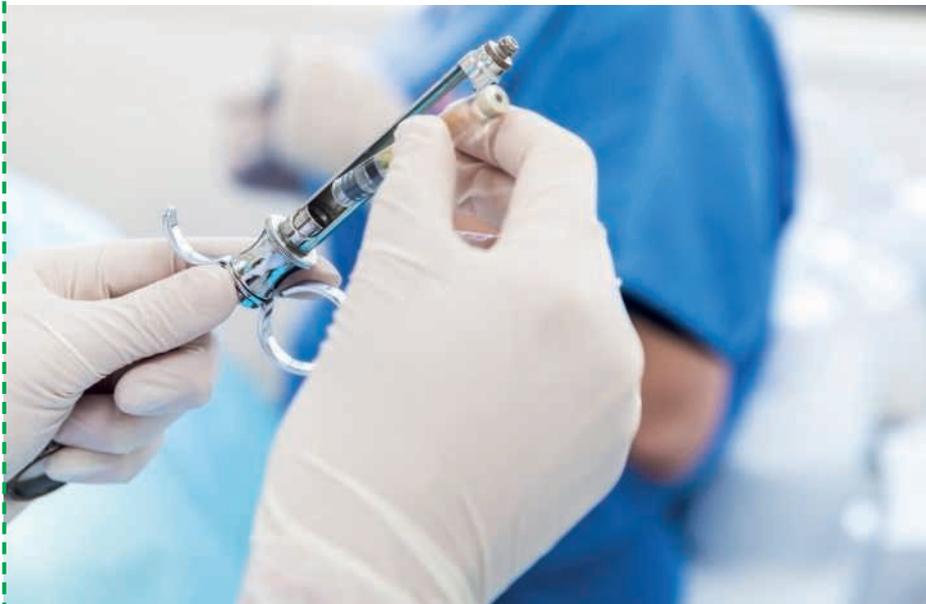
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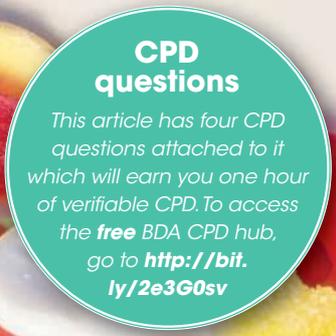
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# The erosive potential of sour novelty sweets

**A. Aljawad,<sup>1</sup> M. Z. Morgan,<sup>2</sup> R. Fairchild<sup>3</sup> and J. S. Rees<sup>4</sup>** describe the link between acidic drinks and dental erosion, and discuss the potential risk of developing dental erosion as a result of frequently consuming novelty sweets.

## INTRODUCTION

Epidemiological studies have highlighted that frequent consumption of acidic foods and/or drinks can lead to the development of dental erosion which is the most common type of tooth surface loss (TSL).<sup>1-3</sup> The development of TSL at an early age in deciduous and mixed dentition is becoming an increasing concern for the dental profession with erosion being the primary cause. The most recent National Child Dental Health Survey reported an increase tooth surface loss (TSL) for all age groups taking part between 2003 and 2013. For example, in 12-year-olds TSL in incisors increased from 12% to 24% and from 30% to 38% in buccal and lingual surfaces respectively; the increase in molar teeth was from 19% to 25%.<sup>3</sup>

Over the last decade sour and novelty sweets have continued to gain popularity in the UK.<sup>4</sup> Sour sweets were first introduced in the late 1970s by adding a sour flavoured coating which contained a mixture of simple organic acids such as citric, malic and tartaric to the surface of the sweet. Sour sweets, incorporating novelty sweets, a more recent development, have grown in market share and social acceptability. For example in the UK, in 2015 Haribo was the leading social brand food company according to their Fast Moving Consumer Goods ranking.<sup>5</sup> Novelty sweets

are characterised by being sold in resealable packages, both sweet and sour tasting, are usually brightly coloured, resemble or can be used as toys and are sold at pocket money prices. The marketing of novelty sweets is mainly directed towards children who are the primary consumers of sweet confectionery in the UK.<sup>6</sup>

Novelty sweets are of particular concern because they contain both high levels of free sugars and acids. Furthermore, their unusual product design facilitates regular frequency of consumption as many are available in resealable packages. Consequently, they have the potential to cause dental caries and dental erosion<sup>7-11</sup> and for children to consume extra 'empty calories' which could lead to the development of overweight or obesity.<sup>12-14</sup> It is because of these concerns relating to oral and general health that it is important to address free sugar, including confectionery consumption, as a part of an overall health promotion programme.<sup>15,16</sup>

Many properties of the acidic solutions emanating from food and drink consumption influence the amount of enamel and dentine loss. These factors include pH and buffering capacity,<sup>17</sup> wettability of enamel surface by the solution,<sup>18</sup> viscosity of the acidic solution<sup>19</sup> and temperature.<sup>20</sup>

To date, studies on the health implications of novelty sweets are limited, addressing only the pH, neutralisable acidity and enamel loss associated with their consumption and their general availability to children.<sup>16,21-26</sup>

<sup>1</sup>Clinical Research Student, <sup>2</sup>Senior Lecturer in Dental Public Health, Applied Clinical Research and Public Health, <sup>4</sup>Professor of Restorative Dentistry, Learning & Scholarship, Cardiff University School of Dentistry, School of Biomedical and Life Sciences, Cardiff; <sup>3</sup>Senior Lecturer in Nutrition, Centre for Nutrition, Dietetics and Food Science, School of Health Sciences, Cardiff Metropolitan University

The objective of this study was to give more detailed information about the erosive potential of novelty sweets and to build on existing research which has assessed the erosive potential of novelty sweets in terms of pH, neutralisable acidity and surface enamel loss. In this study, in addition to the previously investigated factors, wettability of enamel surface by these sweets, measurements of the viscosity of these sweets and subsurface enamel loss with and without initial treatment were assessed.

This study is a part of series of studies undertaken to identify the most commonly available novelty sweets by Aljawad *et al.*<sup>27</sup> The most commonly available sweets from a recent scoping study is shown in Table 1. The study hypothesis is that novelty sweet consumption has major potential public health implications in children as they may cause dental erosion.

## MATERIALS AND METHODS

The ten selected sweets plus distilled water as a negative control and orange juice (Tropicana smooth) as a positive control were tested. Sweets which had solid and syrup components were tested separately. This applied to two products: Juicy Drop Pop and Big Baby Pop. The remaining sweets which were presented as hard boiled sweets were ground up using a pestle and mortar. 10 g of powder was dissolved in 20 ml of water following the method of Davies *et al.*<sup>21</sup> This applied to five products: Juicy Drop Pop, Big Baby Pop, Push Pop, Toxic Waste, Brain Blasterz.

## pH

The pH of each novelty sweet was assessed using an electronic pH meter on a magnetic stirrer (HANNA pH meter HI 2210, HANNA instruments, Michigan, USA). The pH meter was calibrated before each use using pH 7 and 4.01 buffering solutions and the probe was washed using distilled water between each use to remove any remaining residues. The pH of each sweet was measured using ten samples and mean and standard deviations calculated. pH was measured at room and body temperature in a temperature controlled room.

## Neutralisable acidity

The neutralisable acidity was tested by placing 20 ml of each liquid sweet and each prepared hard boiled sweet solution in a glass beaker on a magnetic stirrer and a 0.1M sodium hydroxide was gradually added until neutrality was reached.<sup>21</sup> Sweets presented as hard boiled were ground up using a pestle

and mortar then prepared by dissolving 10 g of powder in 20 ml of water following the method of Davies *et al.*<sup>21</sup> It is important to mention that the pH and neutralisable acidity of the tested novelty sweets are not directly comparable between the solid sweets and the liquid syrup sweets (Juicy Drop), as there was a difference in the concentration between these samples. The amount of sodium hydroxide needed to increase the pH to 7 was noted. Each sweet was tested using ten samples and the mean and standard deviations were calculated.

## Contact angle measurement (wettability)

Specimens of human enamel were sourced from recently extracted permanent teeth following informed consent and ethical approval from South East Research Ethics

Committee, Cardiff, UK (Ref. 12/WA/0289).

Measurement of the contact angle required the preparation of crowns with a flat enamel surface for each side (buccal, lingual, mesial and distal). Sectioning of teeth was undertaken using a low speed machinery saw with a water soluble coolant (Model 650 low speed diamond wheel saw, South Bay Technology, US). Samples were surface polished using 600 grit then 1200 grit abrasive discs on an automatic polishing machine (Kemet International Limited, Maidstone, UK) under water cooling to give a flat surface to allow the contact angle analyser to measure the contact angle between each novelty sweet solution and enamel surface. Enamel crowns were randomly allocated to each test groups (ten samples for each group) using a random allocation software (RAS, v 2.0) (Saghaei, Asfahan, Iran) (Schulz and Grimes 2002;

**Table 1** The most commonly available novelty sweets identified by Aljawad *et al.* (2016)

Sweet	Name	Contents
	Brain Licker	glucose-fructose syrup, acidifiers, citric acid, lactic acid, malic acid
	Licked Lips	glucose-fructose syrup, acidifiers, citric acid, lactic acid, malic acid
	Push Pop	Sugar, glucose syrup, lactic acid
	Vimto	Sugar, malic acid, citric acid, acid regulator (sodium citrate)
	Tango	Sugar, malic acid, citric acid, acid regulator (sodium citrate)
	Juicy Drop Pop	Sugar, glucose syrup, fructose syrup, citric acid, malic acid
	Toxic Waste	Sugar, glucose syrup, citric acid, malic acid
	Big Baby Pop	Sugar, glucose syrup, citric, lactic acid
	Mega Mouth	Sugar, citric acid
	Brain Blasterz	Sugar, acidity regulator

Dettoni 2010). Enamel samples were labelled by permanent marker from 1 to 140 to allow the software to randomly allocate ten samples for 14 groups.

A dynamic contact analyser (model 312; Thermo Cahn, Madison, Wisconsin, USA) linked to a computer was used to measure the contact angle.

This angle reflects the wettability of surface enamel by each type of solutions which in turn may reflect the potential enamel loss by acidic solution.<sup>19</sup>

The methodology used to measure the contact angle included the following.

1. Forty millilitres of sweet solution was placed in a glass beaker and placed on a movable table of the contact angle analyser
2. Each enamel specimen was attached to an electrobalance holder above the glass beaker which was placed on the movable table. The table gradually moved with the glass beaker upward towards the enamel sample once activated by the computer while the wetting medium scanned along at a constant speed via a computer-controlled stage
3. The enamel sample was then pulled up by the downward movement of the table once the appropriate depth in the solution was reached
4. For each test group, ten enamel specimens were used at room temperature
5. The enamel specimen was immersed and then removed from the solution. This allowed for measurement of wetting tensions which was subsequently used to calculate the contact angles by the software in the computer linked to the contact angle analyser
6. The mean contact angle and standard deviation of the ten measurements of each sweet were calculated.

### Measuring the viscosity using the rotational viscometer

The viscosity of the novelty sweets which came in liquid form, in addition to orange juice (Tropicana smooth) and water as positive and negative control solutions, was measured using a rotational viscometer (Cole-Parmer, London, UK). This was applied to Vimto Candy Spray, Tango Candy Spray, Mega Mouth, Juicy Drop Pop, Brain Licker and Licked Lips. The rotational viscometer measures the viscosity proportional to the motor torque that is required for turning the spindle against the fluid's viscous forces. This is called the Searle principle.<sup>28</sup>

The test material was placed in a beaker with an amount enough to immerse the spindle to be in the centre of the glass beaker.

The required spindle was attached to the lower shaft of the viscometer. The lower shaft was held in one hand and the spindle screwed clockwise. The speed (shear rate) was selected to be fixed at 100 RPM.

The readings were taken three times for each material and a mean and SD

calculated. The viscosity readings were given in centipoises (mPa s). Between each measurement, the spindle was removed and washed out by water to remove the test material. All the measurements were taken at room temperature and all measurement were made

**Table 2** pH of tested novelty sweets at room and body temperature (standard deviation in parentheses). Values in bold are statistically significantly lower than the pH of orange juice ( $p < 0.05$ )\*

Product	Mean pH at room temperature	Mean pH at body temperature
Big Baby Pop	3.22 (0.043)	3.18 (0.033)
Big Baby Pop (powder)	<b>2.3 (0.011)</b>	<b>2.37 (0.02)</b>
Brain Blasterz	<b>2.3 (0.01)</b>	<b>2.3 (0.008)</b>
Brain Licker	<b>1.92 (0.02)</b>	2.05 (0.033)
Juicy Drop Pop	3.12 (0.018)	3.16 (0.021)
Juicy Drop (Syrup)	<b>2.24 (0.007)</b>	<b>2.33 (0.02)</b>
Licked Lips	<b>1.9 (0.017)</b>	<b>2 (0.041)</b>
Mega Mouth	<b>1.83 (0.043)</b>	<b>1.93 (0.033)</b>
Push Pop	3.11 (0.023)	3.15 (0.011)
Tango	3.18 (0.022)	3.21 (0.021)
Toxic Waste	<b>1.83 (0.026)</b>	<b>1.93 (0.035)</b>
Vimto	<b>2.43 (0.016)</b>	<b>2.46 (0.015)</b>
Orange Juice (Tropicana smooth)	3.7 (0.02)	3.81 (0.01)

\*Note: It is important to mention that the pH and neutralisable acidity of the tested novelty sweets are not directly comparable between the solid sweets and the liquid syrup sweets (Juicy drop), as there was a difference in the concentration between these samples.

**Table 3** Neutralisable acidity of tested novelty sweets at room temperature and body temperature (standard deviation in parentheses). Values in bold are statistically significantly higher than the orange juice ( $p < 0.05$ )\*

Product	Mean titratable acidity at room temperature in ml	Mean titratable acidity at body temperature in ml
Big Baby Pop (pop)	10.1 (0.16)	10.4 (0.14)
Big Baby Pop (powder)	10.4 (0.11)	10.6 (0.2)
Brain Blasterz	29 (0.15)	29.5 (0.34)
Brain Licker	<b>49 (0.43)</b>	<b>48.5 (0.13)</b>
Juicy Drop (pop)	9.9 (0.17)	10.2 (0.24)
Juicy Drop (Syrup)	<b>201.3</b>	<b>202 (0.43)</b>
Licked Lips	<b>40.2 (0.23)</b>	<b>40.7 (0.42)</b>
Mega Mouth	<b>95 (0.16)</b>	<b>95.3 (0.14)</b>
Push Pop	9 (0.083)	9.2 (0.11)
Tango	<b>41.65 (0.45)</b>	<b>41.6 (0.42)</b>
Toxic Waste	<b>93.6 (0.71)</b>	<b>94.1 (0.43)</b>
Vimto	<b>69.7 (0.36)</b>	<b>70.7 (0.42)</b>
Orange Juice (Tropicana smooth)	28.3 (0.46)	28.4 (0.42)

\*Note: It is important to mention that the pH and neutralisable acidity of the tested novelty sweets are not directly comparable between the solid sweets and the liquid syrup sweets (Juicy drop), as there was a difference in the concentration between these samples.

**Table 4** Contact angles measured between the tested novelty sweets and enamel surface (standard deviation in parentheses)

Product	Average contact angle
Big Baby (Pop)	76.9° (2.93)
Big Baby (Powder)	84.3° (3.14)
Brain Blasterz	75.4° (2.9)
Brain Licker	96.25° (2.06)
Juicy Drop (Pop)	77.14° (2.42)
Juicy Drop (Syrup)	105° (3.04)
Licked Lips	97.4° (2.58)
Mega Mouth	86.5° (1.8)
Push Pop	83.6° (2.81)
Tango	75.43° (0.7)
Toxic Waste	75.4° (2.34)
Vimto	75.22° (2.15)
Water	74.55° (2.6)
Orange Juice	75.745° (2.9)

### Erosion test

Crowns used for the contact angle measurement were sectioned using a low speed machinery saw with a water soluble coolant to obtain 280 enamel specimens. Enamel specimens were embedded in low exothermic epoxy resin (Stycast 1266, Emerson & Cuming, Nijverheidsstraat, 2431 Westerlo, Belgium). Three baseline readings were taken using a contact profilometer (Mitutoyo, surfest-SV2000, Mitutoyo America, USA) for each sample using the method of West et al.<sup>29</sup> and recorded for each enamel sample before undertaking the enamel surface loss. Samples with a stylus deflection to baseline of less than 0.30 µm were used in the study. A 2 × 2 mm window of enamel sample of enamel sample was exposed to 70 ml of stirred solution for one hour at body temperature and the other part was covered using PVC tape (Henleys Medical supplies, Hertfordshire, UK) to assess the difference in the readings between the exposed and un-exposed part of the enamel sample.

Samples were randomly divided into 14 groups using a random allocation software v2.0 (RAS, v 2.0, Saghaei, Asfahan, Iran) with ten samples in each group (12 test solutions, one positive control using orange juice and one negative control using water).

### Surface enamel loss

To assess the effect of saliva on amount of enamel loss, stimulated neutral saliva was collected from the researcher (34-years-

**Table 5** The viscosity of novelty sweets, orange juice and water (standard deviation in parentheses). Values in bold are statistically significantly higher than the viscosity of orange juice

Material	Spindle size	Viscosity (mPa s)
		(n = 10)
Brain Licker	L2	<b>66.90 (0.13)</b>
Juicy Drop Syrup	L3	<b>594.81 (0.10)</b>
Licked Lips	L2	<b>78.82 (0.13)</b>
Mega Mouth	L1	<b>12.85 (0.13)</b>
Tango	L1	2.00 (0.03)
Vimto	L1	1.78 (0.04)
Water	L1	1.00 (0.02)
Orange Juice (Tropicana smooth)	L1	3.00 (0.54)

**Table 6** Total surface enamel loss with initial placement in saliva (Group A) and without initial placement in saliva (Group B) in µm (standard deviation in parentheses). Values in bold are enamel loss statistically significantly more than the amount removed by orange juice (p <0.05)

Product	Surface E loss with initial placement in saliva for 1 hour Group A (in µm)	Surface E loss without initial placement in Saliva for 1 hour: Group B (in µm)
Big Baby (Pop)	<b>7.85 (0.52)</b>	<b>8.78 (0.90)</b>
Big Baby (powder)	4.30 (0.40)	4.92 (0.86)
Brain Blasterz	<b>12.56 (0.42)</b>	<b>13.75 (1.15)</b>
Brain Licker	2.71 (0.065)	3.06 (0.54)
Juicy drop (Pop)	<b>7.12 (0.48)</b>	<b>7.84 (0.55)</b>
Juicy drop (Syrup)	2.68 (0.47)	3.30 (0.57)
Licked Lips	1.95 (0.30)	2.50 (0.40)
Mega Mouth	4.84 (0.05)	5.90 (0.05)
Push Pop	2.80 (0.26)	3.65 (0.67)
Tango	<b>7.63 (0.48)</b>	<b>8.96 (0.07)</b>
Toxic Waste	<b>15.77 (0.84)</b>	<b>17.64 (1.46)</b>
Vimto	<b>9.30 (0.45)</b>	<b>10.46 (0.10)</b>
Water	0.017 (0.03)	0.03 (0.06)
Orange Juice	3.62 (0.04)	4.75 (0.05)

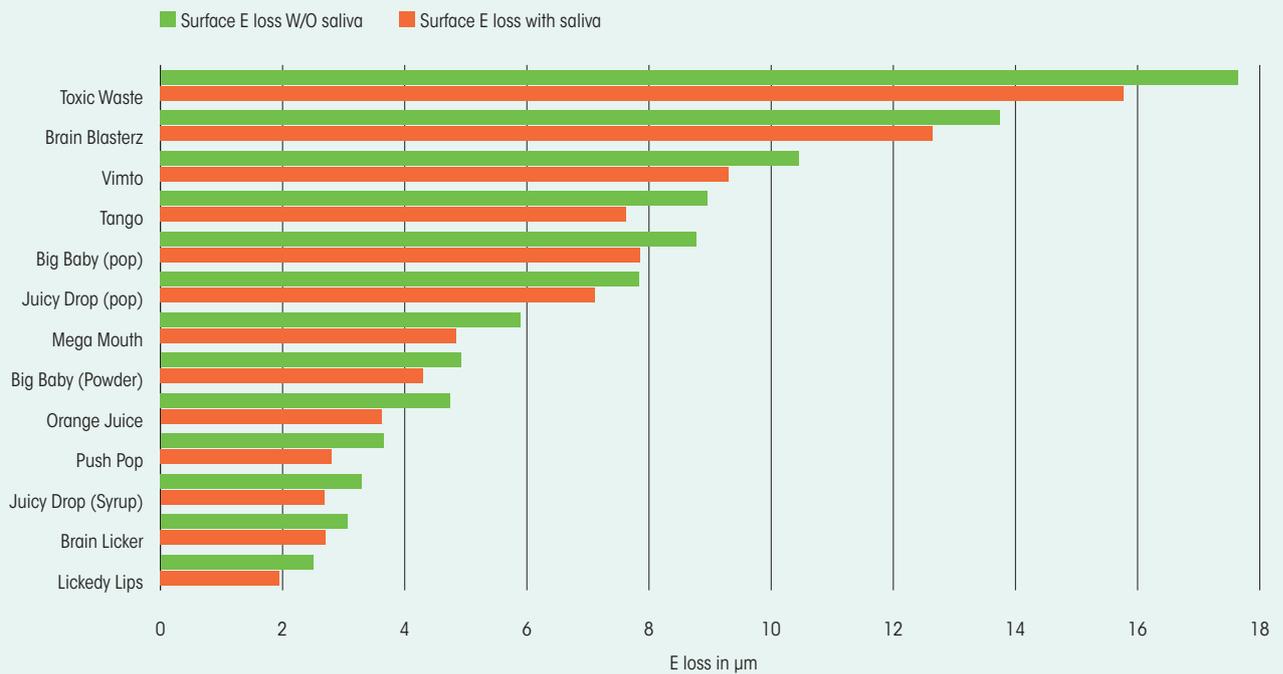
old) using paraffin wax provided in the saliva-check kit (GC Europe N.V., Leuven, Belgium). The saliva sample was collected in the morning between 10 am and 12 pm. The collected saliva samples were stored in a water bath at body temperature. The salivary pH and buffer capacity of the collected saliva was checked using the saliva-check kit. The pH of the saliva used was 7.6 while the buffer capacity was normal/high.

Ten enamel specimens were immersed in natural saliva (collected from the researcher) for one hour in a water bath set at 37°C before immersing them in each sweet solution for

one hour (group A) to assess the effect of saliva on the amount of enamel loss. Another ten enamel specimens were immersed in a glass beaker in each type of solution set at 37°C and exposed to 70 ml of each sweet solution for one hour, with no immersion in saliva (group B). Ten samples were immersed in orange juice as a positive control group and another ten samples in water as a negative control group.

Following exposure, samples were washed with distilled water, dried and surface profiles of the exposed surface measured using surface profilometry and compared to pre-exposure

Fig. 1 Total surface enamel loss with initial placement in saliva (Group A) and without initial placement in saliva (Group B)



	Water	Licked Lips	Brain Licker	Juicy Drop (Syrup)	Push Pop	Orange Juice	Big Baby (Powder)	Mega Mouth	Juicy Drop (pop)	Big Baby (pop)	Tango	Vimto	Brain Blasterz	Toxic Waste
Surface E loss with saliva	0.03	2.5	3.06	3.3	3.65	4.75	4.92	5.9	7.84	8.78	8.96	10.46	13.75	17.64
Surface E loss W/O saliva	0.017	1.95	2.71	2.68	2.8	3.62	4.3	4.84	7.12	7.85	7.63	9.3	12.65	15.77

Table 7 Total subsurface enamel loss with saliva (Group A) and without saliva (group B). Values in bold are enamel loss statistically significantly more than the amount removed by orange juice (p <0.05)

Material	Subsurface E loss with saliva	Subsurface E loss w/o saliva
Big Baby (Pop)	0.34	1.21
Big Baby (Powder)	0.34	1.14
Brain Blasterz	<b>0.81</b>	<b>2.15</b>
Brain Licker	0.43	1.157
Juicy drop (Pop)	<b>0.48</b>	<b>1.96</b>
Juicy Drop (Syrup)	0.28	0.91
Licked Lips	0.3	0.94
Mega Mouth	<b>0.4</b>	<b>1.6</b>
Push Pop	0.23	0.75
Tango	<b>0.39</b>	<b>1.72</b>
Toxic Waste	<b>0.85</b>	<b>2.3</b>
Vimto	<b>0.55</b>	<b>1.84</b>
Water	0.027	0.028
Orange Juice	0.35	1.29

measurements. The value measured by the profilometry is the average of both erosion depth and roughness of exposed surface.<sup>21</sup>

*Sub-surface enamel loss*

When enamel is exposed to dietary acid this causes a shift in the normal mineral dynamic ionic exchange between the enamel and the plaque fluid, mostly from the sub-surface enamel as microradiographs of white spot lesions. The extent of the softening can be assessed by ultrasonication of the enamel specimens after exposure to the test liquid following the method of Eisenburger *et al.*<sup>30</sup>

For the subsurface softening part of this study, the enamel specimens were treated as above but following exposure to the test solution they were ultrasonicated at 37°C in water for 30 seconds using 100 W at 38 kHz. Following ultrasonication, enamel loss was assessed using contact profilometry as above.

The ten enamel specimens in group A placed in natural saliva for 1 hour immediately after measuring the amount of enamel loss using the contact surfometer to assess the effect of saliva on the sub-surface enamel loss. Then, they were placed in the

ultrasonic bath at 37°C for 30 seconds. Then, the amount of subsurface loss was measured using the contact surfometer.

The other ten enamel specimens in group B were placed in the ultrasonic bath at 37°C for 30 seconds immediately after immersing them in the sweet solution and the amount of enamel loss was measured using the contact surfometer without placement in saliva.

## STATISTICAL ANALYSIS

Results of pH, neutralisable acidity and enamel loss for each group of samples were analysed using SPSS (IBM Corporation, Chicago, USA) analysis of variance followed by Tukey's test which was performed with statistical significance set at  $p < 0.05$ .

## RESULTS

### pH

The pH of the tested novelty sweets ranged from 1.8–3.2 at body temperature (Table 2). Toxic waste had the lowest pH value (1.8) while Big Baby Pop lollipops had the highest pH value (3.2).

The pH of eight sweets (at both room temperature and body temperature) was also statistically significantly lower than the pH of the orange juice (3.7) used as a control ( $p < 0.05$ ). These sweets were: Brain Licker (1.92), Toxic Waste (1.83), Licked Lips (1.9), Vimto Candy Spray (2.43), Brain Blasterz (2.3), Big Baby Powder (2.3), Mega Mouth (1.83) and Juicy Drop Syrup (2.24).

### Neutralisable acidity

The values of neutralisable acidity ranged from 201 ml of 0.1M NaOH for the Juicy Drop Syrup to 9 ml for Push Pop (Table 3). The mean neutralisable acidity of seven of the novelty sweets was statistically significantly higher than the neutralisable acidity of the orange juice (28.4 ml NaOH) ( $p < 0.05$ ). These sweets were: Toxic Waste (93.6 ml), Licked Lips (40.2 ml), Vimto Candy Spray (70 ml), Tango Candy Spray (41.6 ml), Brain Licker (49 ml), Juicy Drop Syrup (201 ml) and Mega Mouth (95 ml).

### Contact angle

The results show that the widest contact angle was formed between enamel surface and the Juicy drop syrup with 105°, while the narrowest contact was between the enamel surface and the Vimto solution with 75.22° which caused the highest wettability of the enamel surface (Table 4). The contact angle between enamel surface and orange juice (Tropicana smooth) and between enamel surface and water were 75.74° and 74.55° respectively.

The contact angle between four types of the selected novelty sweets and enamel surface were smaller than the contact angle between the orange juice and enamel surface. These sweets were Brain Blasterz (75.4°), Tango Candy Spray (75.43°), Toxic Waste (75.4°) and Vimto Candy Spray (75.22°).

### Viscosity of the novelty sweets

Viscosity could only be tested on the sweets and control solutions that were in liquid form. The results show that the sweet with the highest viscosity was the Juicy Drop Syrup with 594 mPa s and the lowest is the Vimto spray with 1.7 mPa s, in comparison to the orange juice (Tropicana smooth) at 3 mPa s and water at 1 mPa s (Table 5). There was a statistical significant difference in viscosity between four types of the selected novelty sweets and orange juice ( $p < 0.05$ ). These novelty sweets were Mega Mouth (12.85 mPa s), Licked Lips (78.82 mPa s), Brain Licker (66.90 mPa s) and Juicy Drop Syrup (594.81 mPa s).

### Erosion tests

#### Surface enamel loss

Surface enamel loss caused by novelty sweets ranged from 2.5–17.64 mm (Table 6 and Fig. 1). The erosion caused by six novelty sweets (in both Group A and Group B) was statistically significantly higher than the erosion caused by orange juice (positive control) ( $P < 0.05$ ). These novelty sweets were Toxic Waste, Vimto Candy Spray, Tango Candy Spray, Brain Blasterz, Big Baby Pop, and Juicy Drop Pop. Surface enamel loss caused by novelty sweets after initial placement of enamel specimens in saliva (1 h) then in the sweet solution (1 h) were slightly lower and ranged from 1.95–15.77 mm. A pre-treatment cycle using saliva reduced surface enamel loss by 0.34–1.87 µm.

Furthermore, there was no statistical significant difference between the amount of surface enamel loss with enamel samples initially placed in saliva for one hour and amount of surface enamel loss without immersing the samples in the saliva for all groups ( $p > 0.05$ ).

#### Sub-surface enamel softening

The amount of subsurface enamel loss caused by the tested novelty sweets after one hour together with immersion in saliva before ultrasonication for 30 seconds ranged from 0.23–0.85 µm (Group A). The amount of subsurface enamel loss caused by the novelty sweets with immediate ultrasonication (without immersing in saliva) ranged from 0.75–2.3 µm.

The mean subsurface enamel loss in Group A and Group B caused by six test sweets were statistically significantly higher than the mean subsurface enamel loss caused by the orange juice ( $p < 0.05$ ). These novelty sweets were Brain Blasterz, Juicy Drop Pop, Toxic Waste, Mega Mouth, Tango and Vimto.

Furthermore, the amount of subsurface enamel loss caused by the tested novelty sweets in group A was a statistically significantly lower than the amount of subsurface enamel loss in Group B ( $p < 0.05$ ). The results of the two groups of sub-surface enamel loss are presented in Table 7 and Figure 2.

## DISCUSSION

This study found that the pH of the most common novelty sweets ranged from 1.83–3.20. At a pH of 5.5, the ionic exchange shifts increasingly towards net mineral loss from the enamel.<sup>31</sup>

It was found that the pH of eight tested novelty sweet solution was significantly lower than the pH of the orange juice when tested at room temperature (20 °C) and body temperature (37 °C).

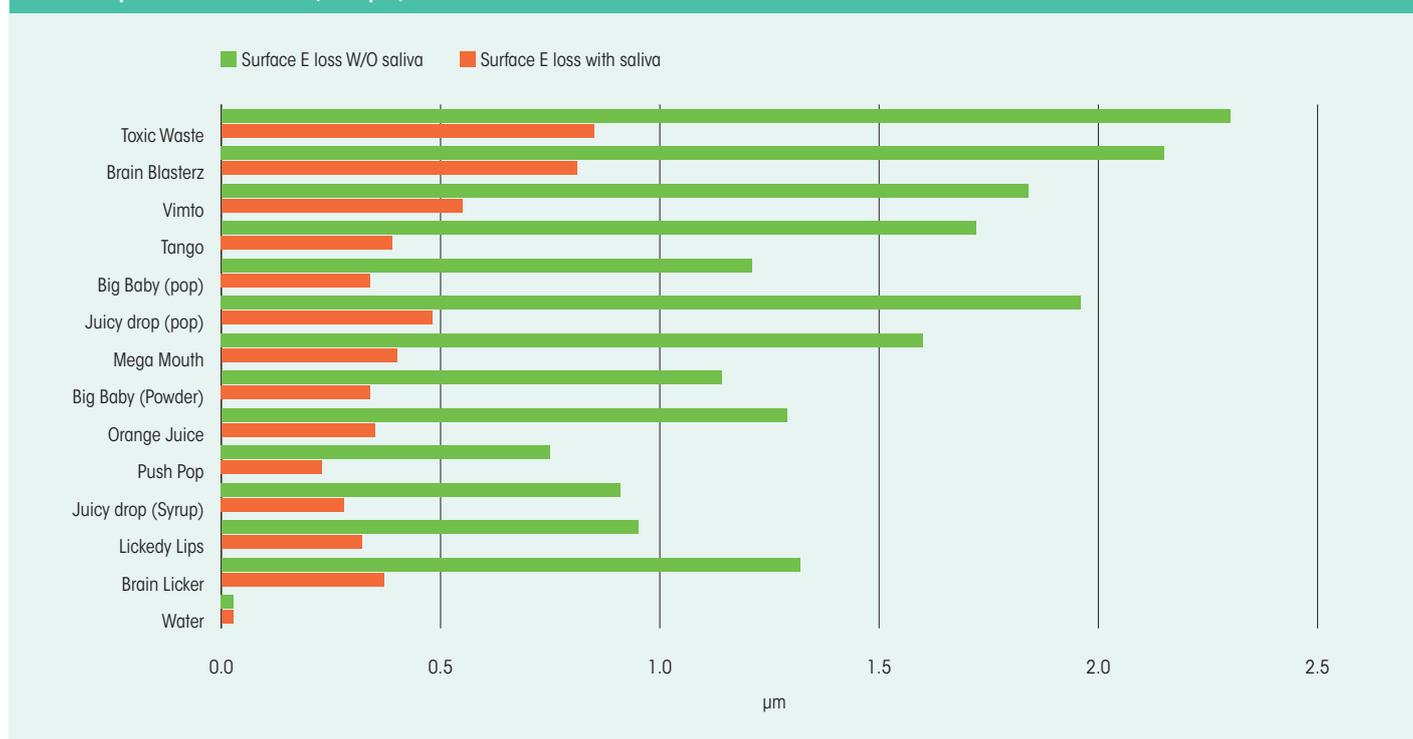
These findings were comparable to the result of the study by Beeley<sup>22</sup> who found that the pH of the novelty sweet tested (Brain Licker, Juicy Drop Pop, Mega mouth and Big Baby Pop) ranged from 1.7–3.4. The results were also similar to the findings of Davies *et al.*<sup>21</sup> who found that the pH of the novelty sweets ranged from 2.3–3.14 (Brain Licker, Juicy Drop Pop and Mega Mouth were common with this study).

The findings of this study show no statistically significant differences in pH between the selected novelty sweets at room and body temperature ( $p > 0.05$ ) which is consistent with the findings of Amaechi *et al.*<sup>32</sup> who found that a difference in temperature did not affect the pH of measured variety of acidic solutions, an important consideration in determining if these sweets have erosive potential.

The erosive potential does not exclusively depend on the pH of the novelty sweets, but it also on their neutralisable acidity. The greater the neutralisable acidity, the longer it takes for the saliva to neutralise it.<sup>33</sup> The data from the present study shows that the neutralisable acidity of Toxic Waste, Licked lips, Vimto candy spray, Tango candy spray, Brain Licker, Juicy drop (Syrup) and Mega Mouth was significantly higher than the neutralisable acidity of the orange juice when tested at room temperature and body temperature.

These findings are largely comparable to the result of the study of Davies *et al.*<sup>21</sup> which

**Fig. 2 Total subsurface enamel loss with initial placement in saliva before the ultrasonication (Group A) and immediate ultrasonication without placement in saliva (Group B)**



found that the neutralisable acidity of the tested novelty sweets range from 9.78–77 ml of 0.1M NaOH and the neutralisable acidity of orange juice was 37.1 ml of 0.1M NaOH.

The resulting range of neutralisable acidity values suggests strongly that most of the novelty sweets tested can potentially cause a drop in intra-oral pH considerably more than the orange juice which could cause clinically significant erosion.<sup>34</sup>

The viscosity and contact angle between the selected novelty sweets and enamel surface were measured to assess the wettability of enamel and subsequent diffusion into the enamel surface which may result in enamel dissolution.<sup>18,19</sup> The findings of this study showed that the higher the contact angle values of the novelty sweets, the lower the wettability of enamel surface and therefore potentially the lower the amount of enamel loss. For example, the contact angle between the Juicy Drop Syrup and enamel surface was 105 degrees (higher than orange juice at 75.7 degrees) and the viscosity was 594 mPa s (higher than orange juice at 3 mPa s), but caused significantly less amount of surface enamel loss 3.3 µm (compared to orange juice at 4.75 µm). The pH of the Juice Drop Syrup was 2.24 (lower than the orange juice at 3.7) and the neutralisable acidity was 201 ml NaOH (higher than orange juice 28.3 ml NaOH).

These findings showed that the viscosity of novelty sweet solutions and the contact

angle with enamel surface by these sweets may be potentially important determinants of the amount of enamel loss. This finding is consistent with the finding of Aykut-Yetkiner *et al.*<sup>19</sup> who found that the amount of enamel loss was dependent on the viscosity of the acidic solutions, not only its chemical properties. This finding is also consistent with the finding of Ireland *et al.*<sup>18</sup> who found that the wettability of the enamel surface directly affected the amount of enamel loss which resulted in longer enamel exposure to acidic solutions.

The results of the surface erosion tests showed that the mean amount of surface enamel removed by orange juice was 4.75 µm. The greatest amount of enamel removed was by Toxic Waste at 17.64 µm, while the least amount of surface enamel removal by Brain Licker at 2.5 µm.

These findings were consistent with the findings of a previous study<sup>21</sup> where the amount of surface enamel loss caused by Juicy Drop Pop, Mega Mouth and Brain Licker in the present study is comparable to the amount of enamel loss caused by the same sweet in the study of Davies *et al.*<sup>21</sup>

The results of this study show that the amount of enamel loss caused by the orange juice was 4.75 µm. This was close to previous findings 5.27 µm,<sup>35</sup> 3.23 µm,<sup>36</sup> 5.2 µm,<sup>37</sup> and 5.3 µm.<sup>21</sup>

The results of this study also showed that there was no significant effect of saliva on

the amount of surface enamel loss ( $p > 0.05$ ), but it did significantly reduce the subsurface enamel loss ( $p < 0.05$ ). Thus, the findings of this study also showed that the saliva confers a protective function against the subsurface dental erosion and that delayed tooth brushing for one hour may allow the softened subsurface enamel to remineralise as demonstrated by Jaeggi and Lussi.<sup>38</sup> However, a recent study by Lussi *et al.*<sup>39</sup> suggested that postponing brushing following an erosive attack should be reconsidered.

The result of this study also showed that there was no significant difference between the amount of surface enamel loss caused by novelty sweets with initial placement of enamel samples in saliva for one hour and without placement ( $p > 0.05$ ). This finding may be explained by the possibility that the acquired pellicle or the formed pellicle was thin and did not significantly protect the enamel from surface loss consistent with Nekrashevych *et al.*<sup>40</sup>

## CONCLUSIONS

The results of this study examining the physical and chemical properties of novelty sweets provide further understanding of the potential effects of these sweets on dental tissues. Although the erosive potential of these sweets varies, all can be considered as potentially erosive.

Clinicians need to counsel young patients about the potential development

of dental erosion and to avoid the frequent consumption of acidic foods, including novelty sweets. Additionally, it is important to inform patients who consume these sweets to avoid any physical challenge, such as toothbrushing, after the acidic challenge, and delay any brushing by about an hour.

Those personnel involved in delivering dental and wider health education or health promotion also need to be aware of the potential effect of consumption of novelty sweets on dental and general health. Parents and children also need to be informed about the possible implications of the frequent use of this type of sweet.

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bdjteam201796

# 'Dental nurses should be renamed as diplomacy experts'



**Emma Phelan**, 38, takes us through a typical busy week as a Community Dental Nurse (Sedation) for Cardiff and Vale University Health Board. Emma is also a Dental Nurse Examiner for the National Examining Board for Dental Nurses (NEBDN).

I was born and brought up in the Rhondda Valleys until my early twenties and have now lived in Cardiff for 12 years. I've been married for seven years, have a nine-year-old daughter, a five-year-old son, and a fur baby - an 11-year-old cat called Bosley. Both of my children attend the local Welsh school and speak fluent Welsh.

I drive about 12 miles to work if I am in my base clinic in Pontypridd, which usually takes 40 minutes in rush hour traffic. If I am working further up the Rhondda, Cynon or Merthyr valley that can take over an hour to commute due to the narrow roads in the valley and volume of traffic. The University Dental Hospital is approximately two miles from my home so travelling there to work is far quicker.

I work 30 hours a week, Monday to Thursday. My start time is 8:45 am and finish time 4:45 pm with half an hour for lunch at 12:30 pm.

I have a varied job in the Community Dental Service. In the clinic I am based in there is a senior dental officer, senior orthodontist and orthodontic nurse, a

community dental nurse, two dental officers who work alternate days, two DCT2s, and a receptionist, as well as me. We are a three surgery set up and one of the surgeries is predominantly orthodontic. Our patients range from mainstream children who are unable to attend a general dental practice; additional care children; adults who are unable to be treated in the general dental service; and anxious children and teenagers. We also offer a domiciliary service, oral healthcare promotion and a paediatric general anaesthetic service.

Mondays I am clinical with the final year dental students who come to us on outreach visits. We have to select their patients carefully as the parent and patient have to agree to treatment being carried out by the student; also the patient has to be suitable for the student in terms of their behaviour and ability to be treated. I spend most of these days helping the students to patient-manage little humans and doing a lot of the talking as they are coming to us to learn these techniques.

Tuesdays I work with the Dental Core Trainee 2. In the morning we undertake the inhalation sedation (IHS) session. There

are five patients booked on to this session: three treatments and two assessments. These patients take a lot out of the dental team as the level of support and encouragement needed is enormous to complete treatment plans. The age of the patients we treat ranges from eight years to 17 years. We do have some adult patients who find IHS works for them but they are by referral only from the Dental Hospital. After this session both myself and the dentist operating feel emotionally drained as we give 200% of ourselves to each of the five patients.

Tuesday afternoons are a normal clinical session with children ageing from very young up to 19 years, both mainstream and children who need additional care. We also treat adults who need additional care in the dental surgery and who are unable to be treated in mainstream practice. Some of our patients can be extremely challenging in their behaviour and some can be the easiest patients you could ever meet. Patients in this category need continuity in care so we endeavour to keep one member of the dental team familiar to them. I have worked in this area for 16 years so have got to know my patients very well. I know their likes and dislikes and am able to set the room and brief the dentist before they enter the surgery if required.

Wednesday mornings are the same as Tuesday morning with an IHS session, three treatments and two assessments, this time with the senior dental officer. On a Wednesday afternoon the general anaesthetic assessment clinic is run from Pontypridd. These patients are referred by their dental practitioner to be assessed and treatment planned for their extractions in the Royal Glamorgan Hospital. Patients fall into four categories for their referral: 1. Multiple decayed teeth; 2. Acute pain and/or sepsis; 3. Difficult management; 4. Orthodontic extractions.

This clinic is rarely straightforward for various reasons. The parent and patient do not always understand why they have been referred; the treatment plan may differ to what they were told by the GDP; the patient attends with the 'wrong person' to complete the paperwork ie grandparent because the mum or dad is in work; the 'right person' attends but without legal documentation for example grandparent has legal custody but fails to bring the paperwork; or the patient is not suitable for XGA for example orthodontic extractions for premolars, one extraction on a fairly compliant ten-year-old for a deciduous tooth. This is the clinic where everything is then dealt with and problems are solved. Patients suitable for procedure are given their date and patients

unsuitable for the procedure are placed on the correct pathway. These sessions are not the easiest as difficult conversations sometimes have to take place with the parents. We try to promote healthy diet and good oral health care at these sessions also, both with parent and child. We have excellent literature for them to read and understand which is produced by the Designed to Smile team who are also a division of our service. Unfortunately in this part of the UK DMF rates are high so our patient numbers are also high on these sessions.

Thursdays for me can either be clinical with the dental officer who works with us three days a week treating our regular patients, or in the University Dental Hospital Sedation Department, undertaking intravenous sedation on extremely nervous adults who are ASA I and ASA II or additional care adults who are ASA III. Again these patients

people when I examine for the Dental Nurse Diploma.

Working with the public can sometimes be very challenging as their perception of what they need can be a lot different to what they actually need. We work in a sector where a lot of people dislike or are phobic of going to the dentist, so initially they can be very aggressive or uncooperative. The challenge is to get that person to overcome this and learn to trust us, or to explain things to them and calm them. This can take a lot of emotion out of you as a person because we are only human after all and being told multiple times a week 'I hate the dentist' can be exasperating. Dental nurses should be renamed as diplomacy experts as we face the full force of the patients' frustration, anger or fear but by the time they reach the surgery their behaviour changes.

Due to having young children I don't have

***'I LOVE MY RELATIONSHIPS WITH MY REGULAR PATIENTS; YOU GET TO KNOW LITTLE THINGS ABOUT THEM AND THEY REALLY APPRECIATE YOU ASKING ABOUT THESE THINGS AND TAKING TIME TO REMEMBER'***

can be extremely challenging. The most challenging are sometimes given oral sedation before they are given IV sedation and some may even need IV sedation with propofol and an anaesthetist. I feel these sessions are rewarding because you manage to achieve the treatment planned and the patient is able to cooperate, which under normal circumstances they wouldn't be able to.

In-between clinical duties I am also responsible for the daily upkeep of the clinic, the stock, ordering and maintenance of the equipment. I run the sedation waiting list for the Rhondda, Cynon and Taff Ely CDS, I am Chair of the Clinical Advisory group and a member of the Quality and Safety group for CDS.

I love my relationships with my regular patients; you get to know little things about them and they really appreciate you asking about these things and taking the time to remember. I also love the special care element to the job as I feel I am really helping to make a difference in that person's oral care and in keeping them healthy. The variety in my job is what keeps it fresh and enjoyable. I also love mentoring other nurses and meeting new

a lot of time outside work, but I have started running, enjoy reading mainly factual books on WWII, and fiction mainly zombie apocalypses, collecting a certain brand of shoe, watching Formula 1 and American football. This year we're looking forward to a family holiday to Disneyland Paris. Each year I want to experience as much as I can with my family, visit new places and try new foods. I also hope to run my first 10k with two friends.

I am vegetarian but the rest of the household are carnivores. Some people may think I am over the top with my children's diet and their sugar intake but I see on a daily basis what damage too frequent an intake can do to a child's mouth. A treat is fine but any more than that become junk. Unfortunately my son is going through the stage of fussy eating; if it's not in a breadcrumb it's not edible. Fortunately my daughter grew out of this and now tries any new food given to her.

If I hadn't gone into dentistry, I would have liked to work with animals, possibly within the RSPCA.

bdjteam201797



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# Patient mouth care: going back to basics



**Kate Quinlan** visited East Surrey Hospital

to meet the passionate individuals behind the Mouth Care Matters programme.

‘Can you imagine how it would feel if you hadn’t brushed your teeth for a week, or if your mouth became so dry through dehydration, that your tongue became stuck to your palate?’ For Mili Doshi, Consultant in Special Care Dentistry in the Dental & Maxillofacial Department at East Surrey Hospital, putting the ‘mouth back in the body’ for hospital inpatients has been top priority since 2015, when she became responsible for developing the Health Education England (HEE) Mouth Care Matters programme in hospital.

‘We needed to raise awareness amongst staff and patients of the importance of oral health,’ explains Mili. ‘The oral cavity is the gateway to our body; we need a functioning mouth to eat, speak, and smile. If we don’t remove the

bacteria in our mouths by daily brushing, it can lead to aspiration pneumonia, a condition with high mortality rates extending hospital stay by an average of eight days. There is evidence that poor oral health is linked to systemic conditions such as aspiration pneumonia, diabetes, cardiovascular disease and even dementia.’

I was delighted to be invited by the Mouth Care Matters team to go along to East Surrey Hospital on 2 May to learn more about Mouth Care Matters and meet the Leads who are currently implementing the programme across 12 hospital trusts in Kent, Surrey and Sussex. The 17 Mouth Care Matters Leads are all seconded to the 12-month programme; nine are dental nurses, two are speech and language therapists, and six are registered nurses. On 2 May they were attending their sixth study day as part of the programme.

According to Mili, the poor state of mouth care for hospital patients is not the fault of hospital staff. ‘Sometimes it can be as simple as not having a stock of toothbrushes on a ward, and nursing assistants, who attend to most mouth care, often have no training. How can we expect someone to support tooth brushing for a patient with dementia who is saying “no, no, no”, if they haven’t had training on how to manage this? Training staff so they understand why oral health is so important and arming them with the skills needed to deliver it is therefore vital. Hospitals must also be adequately stocked with appropriate mouth care products.’

### Mouth Care Matters

East Surrey Hospital, run by Surrey and Sussex Healthcare NHS Trust, is the first in the country to have a specialist mouth care team of dental care professionals to improve the oral health of hospital inpatients. The Mouth Care Matters initiative provides training to nursing staff, doctors and allied health care professionals so that patients admitted for more than 24 hours receive good mouth care during their stay at East Surrey Hospital.

### Developing MCM

Jenny Chay, a dental nurse and oral health promoter at East Surrey Hospital, told me about some of the background to the Mouth Care Matters programme.

‘Health Education Kent, Surrey and Sussex [HEKSS] were already running a programme called IOHOPI: the Improving the Oral

what tools we were using, where things were being recorded, and what the state of affairs was.

‘The hospital had so many examples of wonderful care but mouth care did need to improve. When we started this initiative we came across one older patient who was waiting to be discharged who developed a very dry mouth and started to bite her lip



**Above:** Mouth Care Matters Leads from 12 trusts across Kent Surrey and Sussex. Jenny Chay is third from the left and Mili Doshi fourth from the left

**Right:** Dental nurse Mouth Care Leads Linda Edwards (left) and Rebecca Low



**‘HOW CAN WE EXPECT**

**SOMEONE TO SUPPORT TOOTH BRUSHING FOR**

**A PATIENT WITH DEMENTIA IF THEY HAVEN’T HAD**

**TRAINING ON HOW TO MANAGE THIS?’**

There are four key drivers for the programme:

- Being in hospital has an impact on oral health
- We have an ageing population, so there are more older people who need care
- Our mouths are changing, with more people keeping their teeth
- We are taking more medication, and dry mouth is a common side effect of over 40 medicines.

The Mouth Care Matters initiative has seen a rise in the number of referrals to the on-site dental department and mouth care team and has benefited patients in a range of ways - from making mouths more comfortable, helping patients to eat and drink and correctly treating oral infections - to support for palliative care patients with sore ulcerated mouths.

Health of Older People Initiative. They asked Surrey and Sussex Health Care Trust to develop a branch on the programme focussing on patients in hospital.’

In September 2015 Mili Doshi was approached to run the project, and with Jenny’s help they set out to take a closer look at the oral health of inpatients in East Surrey Hospital.

‘Just before we were asked to do the project,’ says Jenny, ‘the Care Quality Commission [CQC] had come into the hospital and their only clinical finding was that the patients had very dry mouths and there was no consensus of opinion over where you should record mouth care. So one of the CQC’s recommendations was that we implement a tool to address that point.

‘That was a really good starting point for us. We started with the very basics, going and having a look at what we had in the hospital,

constantly. She stopped eating and drinking, developed hospital acquired pneumonia and almost died. We showed the staff how to care for her dry mouth and treat the lip ulceration and the patient recovered. Sometimes it is the little things.’

HEE secured further funding so that a further 12 trusts could fund a mouth care lead for 12 months.

‘We started putting a training programme together and consequently we advertised and we’ve now got 12 trusts with a Mouth Care Matters Lead,’ explains Jenny. ‘They train with



**Rebecca Low RDN,  
Mouth Care Lead,  
Queen Victoria Hospital**

*Rebecca, 26, is the youngest Mouth Care Lead on the programme*

*How long have you been a dental nurse?*

Six years. It was my first job after leaving school. I became a dental nurse because I like caring for people and I have a weird fascination for teeth!

I worked in a general practice for two years before joining a hospital. I used to work with Loraine (one of the other Mouth Care Leads) and I heard about the Mouth Care Matters programme, and I approached our Chief Executive and said can we do this at our hospital, not knowing that he'd already enquired about it. Then I had to apply for funding and go for the interview to be seconded as a Mouth Care Lead for 12 months. I would like to make my post permanent. Queen Victoria in East Grinstead is quite a small trust specialising in jaw surgery and head and neck cancer so I am hoping that the programme will become permanent as all the surgeons are very supportive.

We see a very broad range of patients at Queen Victoria. There is a large intensive care unit and burns unit so those patients are very vulnerable. I also have oral hygiene clinics in Outpatients.

*How are you finding being a Mouth Care Lead?*

I'm really enjoying it. It's really difficult for dental nurses as we do all these post-qualifications but once you've done them all it's like 'where do I go from here, I want to keep going, progressing'.

I love the job, because no two days are the same. I think patients are quite surprised because I'm the youngest on the programme and when they see me and they go 'here we go, this young chick is coming along...' but they take it really well. I think it's about the delivery.

A lot of hospital visits are unplanned and I have found that patients don't come in with everything they need.

us and return for study days and we've got three different cohorts. They are all working hard and we are learning from each other and further developing the programme.'

**Training hospital staff**

Although the Leads are experienced professionals, their role is primarily to train hospital staff in mouth care rather than to provide mouth care themselves. Mouth care training is now part of the mandatory training that all staff at East Surrey Hospital have to undertake annually. The Mouth Care Leads have also provided training programmes for nursing assistants, doctors, physiotherapists, occupational therapists, speech and language therapists, the diabetic team, radiologists, and even outpatients staff.

'The more people in the hospital we can raise awareness in,' says Jenny, 'the more likely it is that mouth care will be carried out.'

As part of the initiative, a mouth care screening sheet (pictured) is completed for

all patients 24 hours after admission. The screening sheet indicates whether a patient is independent - can walk to a sink, stand and brush their teeth, and has the equipment to do so; requires some assistance (they may need a bowl, encouragement or a reminder, for example); or is fully dependent on others for mouth care, in which case they require an assessment by the dental team on-site.

**Dental products**

The Mouth Care Matters programme has also led to a change in the products available in the hospital, so that the same products are available on every ward: a toothbrush, toothpaste and a dry mouth gel. Jenny explains: 'We now have a small, soft-headed toothbrush that's available from NHS Supply Chain and available on the wards. The toothbrush used to look like a nailbrush, with a big hard head and a short stubby handle. If you look at vulnerable, frail patients, it was very difficult to brush their teeth with those.'



**Linda Edwards RDN, Mouth Care Lead, Ashford and St Peter's Hospitals**

*Linda has been in dentistry for 50 years and has worked in a wide range of environments*

*How are you finding being a Mouth Care Lead?*

I love the job. I am really quite sensitive and they said you had to be thick-skinned to do this and I don't fit into that - but I think to do this you've got to be a sensitive person who has the ability to get a thick skin when you need it.

I have come across a lot of difficulties like procurement - getting products in the hospital - which I haven't succeeded at yet but I'm working at it. Generally all the paperwork needs to be implemented onto the wards which again I am working on. You just have to keep at it. So there's an element of tenacity needed but I love it.

*Who have you trained so far?*

I've trained patients and relatives as well as staff and been in a ward where I helped a patient with his denture. The relatives are sometimes there and the patient is sitting there with photos of grandchildren all around them yet the relatives don't think of bringing anything in for them. It's like saying to the relatives, if you could bring this in, if you could bring a toothbrush.

I think it's very disorientating for patients and for their relatives when they come into hospital and I encourage nursing staff to ask the question, have you brought this in? On a ward of ten only one patient had a nice flowery washbag, for example. Nobody else had anything - some just come in with a paper bag.

I think being a dental nurse and coming in from the outside it's been very interesting as you look at a ward of ten people and everyone has got a hospital garment on. Yet there's a patient with £12,000 worth of implants in their mouth. You think, why aren't they are in Harrods pyjamas?!

One ward I worked on, they said to me 'we've lost touch with the basics here' and I said you're right, and she said they were going to print out a little sheet for the relatives when they come in listing the things you are asking them to bring in.

This is a learning process not only for the hospital staff; I stood up with a roomful of office people and gave them toothbrushing instruction. I will speak to whoever is willing to listen to me!

'We also have a non-foaming (SLS free) toothpaste that can be used for all patients. What we didn't want was nursing staff to keep making lots of decisions. That's when mistakes are made. The dry mouth gel is not on prescription so it can be handed out to people to put on themselves or we can support patients to use it.'

The programme has also introduced a sunflower sticker which can be used to indicate that a patient may have a denture. Dentures commonly go missing in hospitals in pillowcases, dressing gown pockets and on dinner trays. Auxiliary staff, porters and housekeepers have been trained to look out for dentures when they see a sunflower sticker. Denture pots with lids have also been introduced.

### Spreading the word

East Surrey dental core trainee Jessica Mann has been helping Mili Doshi to spread the word about mouth care. On 28 April Jessica and Mili spoke at the British Geriatrics Society's Spring Meeting in Gateshead on

'Why mouth care matters', helping to raise awareness of the importance of oral health among medical specialties who may not have considered it. Says Mili: 'Most doctors receive no oral health training in their undergraduate or postgraduate training and so it is perhaps unsurprising that in a recent hospital-based survey, 100% of junior doctors said they did not feel very confident in diagnosing oral related conditions. Training in diagnosis and management of common oral conditions such as oral thrush and mucosal ulceration is essential. Incidence rates for oral cancer are projected to rise by 33% in the UK by 2035 (to 20 cases per 100,000 people) – doctors must therefore be aware of the early signs and symptoms if better outcomes are to be achieved.'

The Mouth Care Matters programme will also be holding a conference on 7 July 2017 called 'Mouth Care Matters - can you

afford not to?' This is designed to teach delegates about the underpinning reasons for the Mouth Care Matters programme and encourage other trusts to support Mouth Care Leads in their hospitals.

Mili hopes that the programme will expand to other areas of the country: 'The Mouth Care Matters initiative is relevant for all people who provide personal care to patients be that in an acute, care home or community setting. Oral health is an important part of general health and wellbeing. It allows people to eat, speak, smile and also socialise without discomfort or embarrassment. Poor oral health can lead to a deterioration in general health. This links to quality of life and dignity.'

From Jenny's point of view, oral health has always been important, but has slipped off the agenda: 'When I was young I used to have my temperature taken in my mouth. Hospital thermometers were the ones you put into

the mouth so somebody would have looked in patients' mouths three or four times a day. Now we wave something over their ear and a problem in the mouth can disappear by the patient pushing their lips together. It has just been forgotten that if a patient can't eat, the first thing that you should look at is the first place the food goes: the mouth. We've had cases where the denture's been left at home and the patient's been given food but they can't chew it, or their mouth is so dry they can't open the mouth to get the food in ... so we start with the very basics. That's why I think the MCM programme is so successful, because it's so simple.'

### MCM resources

Mouth Care Matters resources including a guide for hospital healthcare professionals, the mouth care screening sheet and an oral health needs assessments checklist for care homes can be viewed at: <http://www.mouthcarematters.hee.nhs.uk/links-resources/mouth-care-matters-resources/>.

The following posters can be viewed at the same link: Mouth care assessment guide 'How to do an oral assessment' 'The denture sunflower' 'Denture care'.

**Mouth Care Matters** Health Education England

**Mouth Care Pack**  
To be completed for every patient 24 hours after admission

**Mouth care screening sheet**

Any tick in a red highlighted box indicates a **MOUTH CARE ASSESSMENT** is required

1. Patient has:

Toothbrush	Y <input type="checkbox"/>	N <input type="checkbox"/>	Provided <input type="checkbox"/>
Toothpaste	Y <input type="checkbox"/>	N <input type="checkbox"/>	Provided <input type="checkbox"/>
Upper denture	Y <input type="checkbox"/>	N <input type="checkbox"/>	At home <input type="checkbox"/>
Lower denture	Y <input type="checkbox"/>	N <input type="checkbox"/>	At home <input type="checkbox"/>
Denture pot	Y <input type="checkbox"/>	N <input type="checkbox"/>	Provided <input type="checkbox"/>
No teeth	Y <input type="checkbox"/>	(Patient will still require mouth care)	

2. Does the patient have any pain or discomfort in the mouth?

Severe dry mouth	Y <input type="checkbox"/>	N <input type="checkbox"/>
Ulcers	Y <input type="checkbox"/>	N <input type="checkbox"/>
Painful mouth	Y <input type="checkbox"/>	N <input type="checkbox"/>
Painful teeth	Y <input type="checkbox"/>	N <input type="checkbox"/>
Sore tongue	Y <input type="checkbox"/>	N <input type="checkbox"/>

3. Patients with any of the following will require a mouth care assessment:

<input type="checkbox"/> Chemotherapy	<input type="checkbox"/> Learning difficulties
<input type="checkbox"/> Delirium	<input type="checkbox"/> Nil by mouth
<input type="checkbox"/> Dementia	<input type="checkbox"/> Palliative care
<input type="checkbox"/> Dependent on oxygen use	<input type="checkbox"/> Refusing food or drink
<input type="checkbox"/> Dysphagia	<input type="checkbox"/> Severe mental health
<input type="checkbox"/> Frail	<input type="checkbox"/> Stroke
<input type="checkbox"/> Head & neck radiation	<input type="checkbox"/> Unable to communicate
<input type="checkbox"/> ICU / HDU	<input type="checkbox"/> Uncontrolled diabetes

4. Level of support: ■ Requires risk assessment ■ Unable to get to a sink/needs assistance

**Patient is fully dependent on others for mouth care**   
Mouth care assessment required. Record all mouth care on the daily recording sheet.

**Patient requires some assistance**   
Unable to get to a sink or needs help with mouth care. Record all mouth care on the daily recording sheet. Please state the assistance patient requires: (i.e. bowl, encouragement, reminder, remove dentures etc)

**Patient is independent**   
Able to walk to a sink and needs NO assistance with mouth care.

Signed: \_\_\_\_\_ Name: \_\_\_\_\_ Date: \_\_\_\_\_ Job title: \_\_\_\_\_

Above & left: The Mouth care screening sheet for patients, developed by the Mouth Care Matters programme

**Mouth Care Matters**

**Mouth care assessment**  
Complete WEEKLY if the patient has a red box ticked on the mouth care screening sheet or if their condition deteriorates during their stay.

Look in the patients mouth using a light source and carry out a weekly assessment. Mark as L, M or H in the white box.

	Low risk (L)	Medium risk (M)	High risk (H)
<b>Lips</b>	• Pink & moist	• Dry/cracked • Difficulty opening the mouth	• Sores • Ulcers
<b>Action</b>	None	Dry mouth care	Refer to DENTIST
<b>Tongue</b>	• Pink & moist • Clean	• Dry • Pitted/shiny	• Loss of taste • White patches • Ulcers
<b>Action</b>	None	Dry mouth care	Refer to DENTIST
<b>Teeth &amp; gums</b>	• Clean • Teeth not broken • Teeth not loose • Gums not bleeding • Gums not inflamed	• Unclean • Broken teeth (no pain) • Bleeding gums • Inflamed gums	• Severe decay • Sore
<b>Action</b>	2x daily tooth-brushing	2x daily toothbrushing & clean the mouth	Refer to DENTIST
<b>Cheeks, Palate &amp; under the tongue</b>	• Clean • Saliva present • Looks healthy	• Mouth dry • Sticky secretions • Food debris • Ulcer < 10 days	• Very dry • Ulcer • Widespread ulcers • Looks sore
<b>Action</b>	None	• Clean the mouth • Dry mouth care • Ulcer care	Refer to DENTIST
<b>Dentures</b>	• Clean • Comfortable	• Unclean • Loose • Patient will not remove	• Lost • Broken, unable to wear
<b>Action</b>	Clean daily	• Denture care • Denture fixative • Encourage removal	DATX if it refer to the DENTAL TEAM if broken

\*For patients who are unable to communicate or cooperate with a mouth care assessment, some signs of a mouth related problem may include: not eating/drinking, facial swelling & behavioural changes

**Dry mouth care**  
Frequent sips of water unless nil by mouth  
Moisturise dry mouth gel onto the tongue, cheeks and palate  
Hydrate with a moist toothbrush  
Apply lip balm to dry lips  
Keep mouth clean

**Ulcer care**  
Rinse mouth with saline  
Anti-inflammatory mouth spray – discuss with doctor  
ULCER PRESENT FOR MORE THAN 2 WEEKS; REFER TO DOCTOR

**Denture care**  
Advise the patient to leave denture out at night in a named denture pot with a lid  
If the patient has oral thrush, soak in chlorhexidine (0.2%) mouthwash for 15 minutes twice a day, rinse thoroughly and encourage the patient to leave the denture out whilst the mouth heals

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*Sahar*

Dentist and  
Postgraduate Student

*Ben*

Dentist and Innovator

*Charlotte*

Dentist and Problem  
Solver

*Amir*

Dentist and Team  
Leader

*Jo*

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[bda.org/wearedentistry](http://bda.org/wearedentistry)

# ‘I enjoy the challenge of treating patients with special care needs’

**Kerry Wafer, 36**, is a specialist dental nurse with the Special Care Dental Service at Birmingham Community HealthCare NHS Foundation Trust.



**I** get up at 6 am. I live with my husband and our nine-year-old twins Ruby and Lewis in Wolverhampton - my home town. I drive to work which is 20 miles away and drink coffee on the way!

I work full time Monday to Friday, from 8:45 am to 5 pm. My job is 50/50 clinical/admin duties. The admin side includes: promotion of the service, audit, general patient admin, arranging clinics, observing specialty training registrars (StRs) and planning teaching sessions for internal and external teams. My clinical duties involve assessment sessions with the consultant, clinical screening sessions in mental health secure units, sedation sessions, and arranging and sitting in with teams for best interest meetings to work out a plan for the treatment of patients who may lack capacity.

I enjoy the patient management side of my

role and the challenge of treating patients with special care needs, as well as the responsibility of leading in new projects and initiating change within the service.

The most challenging part of my role is the journey to work!

There are too many people to count working across the whole service but within the special care team we have two consultants, four senior dental officers, two StRs, several dental officers and numerous nurses who work across special care and paediatrics.

When I get chance I normally eat lunch with my colleagues - a home prepared sandwich or salad - often this may be at my desk.

Twice a year we run a special care study circle which is open to colleagues who are working in neighbouring trusts within special care. Our service also holds twice-yearly whole team training days with themes around special care conditions. We are also supported fairly to apply for funding for training and CPD and encouraged to add to our portfolios.

I get home at 6 pm and spend as much

time with my family as I can. My son Lewis has Asperger's so lots of time has been spent getting a diagnosis and supporting things to help him manage his day to day challenges.

Lewis plays football three times a week and my daughter Ruby is in a gymnastics team training four times a week, so for now most of our time is spent juggling getting to sessions!

I don't have a lot of time for other activities. This year we hope to completely renovate our house following an extension last year, and are planning a dream holiday trip to Florida.

I carefully meal plan for the family for the week ahead to ensure we don't waste food and to save time by preparing meals in advance. It's important to us that the children can still eat healthily despite having to rush to get to training sessions.

If I hadn't gone into dentistry I would probably have chosen general nursing or teaching, as clinical education has always been a passion of mine.

I am in bed by 10:30-11 pm.

bdjteam201799

# ‘Seeing the clinic thrive has been amazing’



Dental hygienist and practice manager **Rachael England** describes the challenges of setting up a new dental clinic in Dubai, where she has lived since 2013.

## A new challenge

After working in dental clinics for 20 years as a dental nurse and then as a dental hygienist I didn't think there would be much more to know when I took on a practice manager's role in 2015. I was invited to join a startup clinic in Dubai wearing multiple hats: hygienist, manager and patient care coordinator. The clinic build had been completed and the licensing process started for the joining clinicians, however, I would be tasked with establishing the operating procedures, ensuring Dubai Health Authority (DHA) and municipality regulations were met.

The clinic owner, Dr Banker is very focused on a preventative care clinic, something which is lacking amongst the glitz and glamour of the many cosmetic providers in Dubai. With her support and blessing we have worked with Philips and the DHA to introduce the Dubai Smiles Healthy campaign ([www.nature.com/articles/bdjteam201774](http://www.nature.com/articles/bdjteam201774)), supervised tooth brushing in schools and regular community activities.

The support staff were mostly in place and two general dentists, but we needed patients.

## Attracting patients

Patients are not so easy to find; after reading just about every Chris Barrow and Sheila Scott article online, I endeavoured to begin networking. What I discovered over the next ten months is that in expat communities, word

of mouth is king. The Medical Director Dr Neil started the snowball with friends and patients who had followed him from his previous clinic. Our first ten delighted patients spread the word and we quickly began to gain traction.

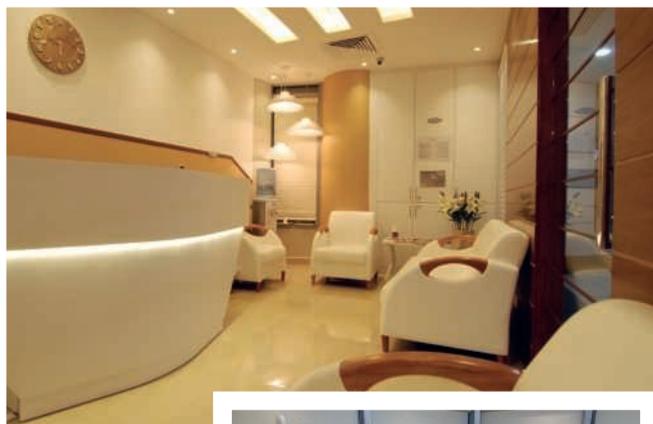
Closely monitoring patient source, we realised that our spending on social media and pay per click was creating brand awareness but not bringing new referrals. We are now using a dedicated patient care coordinator and ensuring the patient journey is smooth and they feel truly cared for; nurturing these relationships has ensured the continued good word of mouth and we are registering over 100 new patients a month.

## Quiet periods

Dubai is a very seasonal city, despite it not having a winter as such. We can expect the diaries to become quiet through July and August and around the school holidays when the expat community head home to escape the heat. We have tried to limit the impact of this on the clinic by emphasising the importance of booking recalls and ensuring patients book ahead. Initially our receptionist was telephoning all recalls, which showed a very poor uptake. Introducing email and text message recalls has ensured at least a 50% recall success so far. Our goal is to increase this to at least 70% but with such a transient community you can never be sure if people are even still in Dubai.

**Dealing with regulations**

Dealing with the regulations in the UAE [United Arab Emirates] has taught me levels of patience on a par with Mother Teresa; for example: to have radiography equipment we needed a licence from the Federal Authority for Nuclear Regulation, whose offices are two hours away in Abu Dhabi. After sending a driver to collect



The new dental clinic in Dubai that Rachael has been closely involved in setting up

**Technical and cultural challenges**

Other challenges arising have mostly been technical with website errors, undelivered emails, and changed servers. Knee-jerk reactions from the web management team and failure to accept responsibility has caused many hours of frustration and changing of supply contracts. I've learned a whole new vocabulary relating to search engine optimisation (SEO), pay per click (PPC), long and short tail keywords and Meta analytics... Google is my new best friend!

I thought managing staff would be easy; after all, I've managed patients for the last ten years! However, although we all have dentistry in common, the staff at our new clinic are from such a variety of backgrounds and nationalities, culturally we are very different. I found it very hard to assert myself at first, and really it took about eight months to actually feel like a manager and deal with both welfare and disciplinary issues in a confident way.

**A learning experience**

Despite all this, I have thrived on the difficulties. Every day has been a learning experience and I've harnessed my inner geek to digest as much new information as possible in order to get the best results for our investors. I encourage the staff to reach their potential and reward those who bring in new ideas and exceed my expectations. Seeing the clinic thrive and feeling exhilarated when we hit our targets has been amazing and I'm so proud of everything we have achieved in the first year.

Looking to the future, Dr Banker has plans to expand to at least seven clinics. We have agreed that buying existing clinics rather than starting from scratch would be less of a headache, but I am prepared for a whole new set of problems...

1. Department of Health. Decontamination in primary dental practices (HTM 01-05). 26 March 2013. Available at: <https://www.gov.uk/government/publications/decontamination-in-primary-care-dental-practices> (accessed May 2017).

**'DEALING WITH THE REGULATIONS IN THE UNITED ARAB EMIRATES HAS TAUGHT ME LEVELS OF PATIENCE ON A PAR WITH MOTHER TERESA.'**

the licence and returning it with the clinic name spelled incorrectly, he returned to Abu Dhabi, only to come back with the name spelled wrong again! The daily running and standards set by the DHA aren't published in great detail, so we opted to establish all the protocols in line with HTM 01-05 best practice.<sup>1</sup> This also involved many hours of staff training but during the formative months we had time and the hard work was worth it when we passed our DHA inspection with flying colours.



Did you see Rachael's previous article about moving to Dubai? [www.nature.com/articles/bdjteam201630](http://www.nature.com/articles/bdjteam201630)

bdjteam2017100

# Dental research: 'you've got to give it a go'



Dental hygienist **Susan Bissett** is a PhD student at Newcastle University and Team Lead for the Dental Clinical Research Facility. In 2014 Susan was the first ever dental hygienist to be awarded a four-year Doctoral Research Fellowship by the National Institute of Health Research (UK). Susan is Mum to two teenagers.

Interview by Kate Quinlan

## *Did you plan a career in dentistry when you were still at school?*

It wasn't as clear in my mind as that but I was always interested in healthcare. When I was about 19 I saw an advert for a dental nurse in a local dental practice and I thought 'oh that would be such a cool thing to do'. The principal dentist was a really excellent teacher; he did sessions working with the undergraduate dental students during his week as well so he was incredibly patient. I was instantly fascinated by it all. In the first week that I worked there I remember assisting with an apicectomy. I'd never seen anything like it before and it just blew my mind! I absolutely loved it.

## *Did you start your dental nursing qualification straight away?*

Yes. It was a permanent job and within weeks of starting at the dental practice I'd enrolled on the dental nursing course and on the oral health educator course at night classes. I can remember I had to get a special dispensation to be able to do the OHE course because normally

they recommend just doing one of the courses at a time. After a year I'd qualified as a dental nurse and an oral health educator.

## *Did you continue working as a dental nurse for a while?*

I stayed at that practice for a little while after I'd qualified but I instantly wanted to progress further and found out about the dental hygiene programme that was running here at the dental hospital. I applied for that and went for an interview. My progression onto dental hygiene was quite swift. I wanted to be more hands-on and loved the fact that people would be coming to see me as opposed to me taking the patient through to see someone else and then assisting.

There is very little opportunity for career progression for dental nurses and dental hygienists. Going on to being a hygienist from being a dental nurse was something you could do when I qualified, as long as you had your nursing qualification, five GCSEs and passed the interview. At the time becoming a hygienist was

through a one-year diploma programme. It was very intensive and you couldn't really do any paid part time work; you sacrificed everything to do the course and catch up with your homework and revision all weekend. It was full time, 9-5 with minimal holidays.

I was living with my parents at the time - I finished my dental nursing job, sold my car to pay for the books and everything and didn't do anything but study for a whole year! But it was definitely worth it.

## *Did you quickly find employment after qualifying as a dental hygienist?*

When I qualified I worked three jobs - it's very common for hygienists and therapists to work a day here, a day there at different practices. I had three jobs for the majority of the time I was working in practice and in hospital. It was fantastic to be qualified but as with a lot of courses the learning doesn't stop when you get your qualification, it goes on - learning how to adapt to shorter appointments and working unassisted - because you don't often get a dental

nurse to help you (in fact that's quite rare) - learning how to manage your salary as I was self-employed, and so on. When I look back it was surprisingly tough for the first year or so and a bit of a shock to the system.

An accountant did come and speak to us at the end of the diploma course and I was a student member of the British Dental Hygienists' Association, as it was at the time, and they gave an awful lot of support in being newly qualified and coping with everything.

I very soon started working as a tutor hygienist as well, teaching on the diploma programme that I had been a student on.

I worked full time until I had my first child and then part time after that until I got involved in research. I took very little maternity leave - I was very fortunate that I was fairly healthy throughout both of my pregnancies and was able to keep working until a couple of weeks before my due date. I was then back to work within three months. This was for various different reasons but it was a gradual return to work. Whenever you've had time off work, to return is quite an anxious thing. For me, it was less anxious than I have seen with other people, maybe because I wasn't away too long. You're very much back in the swing of things very quickly but obviously there is also the downside when you have to leave your baby crying and rush off to work. Your life becomes a constant juggling situation - a normal story for anyone who chooses to have a family and work. You just deal with one day at a time. Even when your kids grow up and become teenagers they still seem to need an awful lot of support and care. It's the same pressure but just different problems.

*When did you first start to develop an interest in undertaking research?*

Around 2007 I heard about a research team who were wanting another member. It was called the Tooth Fairy Project and they wanted donations of either exfoliated or extracted primary dentition. They wanted to analyse the donations for lead content [derived from vegetables as a result of lead content in soil and potentially from meat as well]. So I was enrolled on to that project to go out to schools and promote it and encourage kids to get involved. It was fantastic being part of the team. Having worked in three different places during the week, you're this person who turns up and then goes away, so suddenly to be an important member of a small team felt really good. I'm not saying that I wasn't an important member of a team in the practices where I worked, but in the research team you're all working to a common goal and want the project to be successful. I loved the meetings

and going out to the schools and doing talks to children. It was a real opportunity.

Unfortunately they didn't get enough teeth. We thought the parents might give them to us but there seems to be a phenomenon out there of people wanting to keep their children's teeth as little mementoes. When you're designing a project you can't always predict how recruitment will work out.

*Did this lead to your involvement in further research projects?*

I got wind of the fact that a dental hygienist was leaving another project which was to do with diabetes and periodontal disease and there was a vacancy. I was instantly attracted to that but it was a temporary contract and full time so it meant giving up my other jobs to work for a year. It's something that you've got to think seriously about when you've got a mortgage and bills to pay. It really excited me though and I went for the interview and got the job.

Again I felt a great connection with the research team members and it was about getting the best outcomes for patients and the best outcomes for the study. Everybody's working together to make that happen. This combined effort is something I really enjoy being involved in.

you could be in practice full time and do the course. But for me I went to the face-to-face teaching days, about eight over the year, and the rest of the time you're doing self-directed learning and assignments. I completed my Masters in Clinical Research in August 2012 with Distinction.

*Were there other DCPs on the clinical research programme?*

No, it was very heavily medical - lots and lots of doctors. The year before there had been a huge nurse intake and then suddenly lots of clinical fellows who were wanting to do a research component to their fellowship enrolled on this course. Yes, it was a bit intimidating being around lots of doctors at that point. The course is very clever in that at the end of the first year, your last assignment is to design a research proposal, something you could carry out in your workplace, so if you continue to year 2 and 3 the curriculum takes you through the processes of getting all of the research funding, governance and approval sorted out for your project and then carrying out your project, which becomes your Master's thesis. Once I had got my proposal I really wanted to carry it out.

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That was in 2009 and my contract kept getting rolled over. My job has progressed so now I'm Team Lead for Oral and Dental Research in Newcastle upon Tyne Hospital Foundation Trust. It's a managerial role, managing our research facility, the staff who work in it and liaising with other researchers. We didn't always have a research facility here; that's something that happened during my time here. It opened in 2011.

I got on to the clinical research programme the second year that it had been running. It was a three year programme and you could exit after year one with a certificate in clinical research, year two with a diploma or year three with a Masters ... and I only ever thought I would do year one. It's a really clever course because there's an e-learning route - so

*Did this lead you to start your PhD?*

Yes, my PhD has followed on from my Master's degree and it was an original idea of my own. It's all to do with the fact that if someone has diabetes and doesn't really go to the dentist or other dental professional then you're very unlikely to be told about your increased susceptibility to periodontitis. That's because medical teams don't know about the evidence linking diabetes and periodontal disease, even though it has been there for over 20 years. Medical people don't read dental journals and it has all been dental researchers working in this area. Basically my PhD is about trying to get medical teams to talk to their patients about gum disease and how it can affect your glycaemic control and of course diabetes is all about trying to be stable and keep your blood sugar at a

certain level. So if there's a massive amount of inflammation going on in your mouth there's a knock-on effect to your blood glucose levels. Patients don't know about this, even though it can be so easily treated, with results within weeks. The benefits are really significant.

I needed funding to do a PhD. I ended up applying for a National Institute of Health Research (NIHR) doctoral fellowship. The ideal programme to go on is a clinical academic training programme, but I wasn't eligible as a dental hygienist. They were strongly advertised to allied health professionals such as nurses and midwives but originally I was told I'm not allied to medicine so I can't apply. It has changed now, DCPs can apply, but this is why I chose the doctoral fellowship route.

I was intimidated by the thought of my application being alongside all the high-flying doctors and dentists. But I was reassured that nurses and occupational therapists went for these fellowships as well, and being the only dental hygienist to apply may have worked in my favour. You're very much judged by you as a person and what your project is about and whether you can be a champion and encourage people from the same background to come forward. It's a privilege to be able to be in that position.

*How did it feel when you were given the fellowship?*

It was like a lottery win, a life-changing moment. Doing a PhD was like something that 'other people' do so to get that opportunity was really something. I think it's about seeing and recognising an opportunity and not wanting to let it pass you by; to go for it, even if it's scary and you don't think you stand a chance - you've got to give it a go.

*Can you summarise an average week in your life at the moment?*

My PhD is part time. My working week is supposed to be 25% team lead and 75% PhD. However, that is very difficult to restrict yourself to so there are some weeks when I really struggle to get PhD work done when there are other demands. As we are a really small team I spend a lot of time with researchers, guiding them through the governance surrounding research. Getting all their approvals through is hard work as it's so highly governed. There are reasons why it's like that but the system keeps changing so everyone is always in the dark and I can guide them to a certain extent and help them. I also manage the facility staff so of course there are always things coming up with staff and recruitment and training etc.

For my PhD, I'm trying to write thesis

chapters. There are three stages to it and I've just completed phase one of three. I'm working on presentations for various people, writing and preparing for the next phase.

There is always lots going on and never enough hours in the day. In a way you've just got to say that's what I've got done today and I'll do more tomorrow. Working in the evening and at weekends is hard because home is super busy too.

*How can other DCPs get involved in research?*

Getting more DCPs involved in research is something I feel really passionate about. If by example I can in any way influence people, then I'm really pleased to be able to help in that way. Research is rewarding to be involved in and very satisfying. To be doing your own project is amazing.

**'IF BY EXAMPLE I CAN IN ANY WAY**

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Getting started is very tricky. There are no Academic Clinical Fellowship training positions and you need dedicated time for research. You cannot do research only at weekends or only in evenings. Also if you're based in a university, as I am, you've got access to support and people who can help. You can't do research on your own. You need supervisors and experts in the subject area; you need mentors and to put together an idea and speak to all sorts of people in the areas where you might be recruiting people to answer surveys, or patients in a department, for example ... it's like the layers of an onion: you are in the centre, but there are many people involved, some more so than others, but all essential.

If you're a dental hygienist in a practice with appointments back to back and barely a break to go to the toilet, it is very difficult to get involved in research. There are many challenges, but people do need to get involved and make this happen. I hope a programme might be developed that might encourage DCPs and people working in practices to get involved, making it accessible for them to do so. I don't know the answer and I wish I did. We need to keep working at it.

*What are your plans for the future?*

I imagine that I would like to continue with

my PhD project. I'd like to do some more feasibility and pilot work or do a randomised controlled trial with that project, so it's about where I would get the funding to continue. The application for my NIHR doctoral fellowship took me a year. Within the next year I've got to start thinking of doing another application form for more funding - that's how research works and it's competitive and I may not get the funding.

I hope that there will always be a role for me here being a team lead. My wish list is to stay working in research, get my PhD which will be amazing, continue to work in research, help other people with their projects, and maybe help support and continue the battle to get more DCPs involved in research.

*What do you like to do outside work?*

Outside of work is house work! You have your week schedule and your weekend schedule and I've never managed to do everything I wanted to by Monday morning.

My favourite things to do are walk my dog out in the country, being around nature, and spending time with the kids, catching up on our favourite programmes, cuddled up on the sofa ... oh and going to charity/vintage shops - I love getting a bargain!

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# Product news

Product news is provided as a service to readers using text and images from the manufacturer, supplier or distributor and does not imply endorsement by *BDJ Team*. Normal and prudent research should be exercised before purchase or use of any product mentioned.

## WHITENING TOOTHPASTE WITH CHARCOAL

Diamond Whites have just launched their Black Edition Paste.

Mixing their best-selling activated charcoal powder with a mint whitening toothpaste, the Black Edition Paste is only £9.99 and is now available to pre-order at [www.diamondwhites.co.uk](http://www.diamondwhites.co.uk).

Their latest launch follows Diamond Whites' leading Black Edition charcoal range including their Black Edition Charcoal (£13.99) made from 100% activated coconut shell charcoal. [www.diamondwhites.co.uk](http://www.diamondwhites.co.uk)



## ACCELERATED HEALING OF TRAUMATISED ORAL TISSUE

Dent-O-Care are pleased to announce the launch of Gengigel Spray, a new addition to the Gengigel range. Gengigel is a patented formulation containing high molecular weight hyaluronan, a natural physiological constituent produced in the body



to heal and repair itself. Gengigel is widely endorsed by periodontists and hygienists due to its ability to calm inflammation and promote tissue healing. This exciting

product range provides opportunities to better manage traumatised oral conditions such as xerostomia, mouth ulcers, burning mouth syndrome, lichen planus as well as periodontal disease that is resistant to resolution.

Gengigel is the first completely natural topically applied oral care product to help control the host response to manage all sorts of intra-oral inflammatory and painful conditions, as well as patients with periodontal disease that demonstrate poor healing after treatment.

For more information call 0208 459 7550 or email [marketing@dentocare.co.uk](mailto:marketing@dentocare.co.uk).

## THE LARGEST DENTAL SHOW IN THE UK IS BACK!

As a part of the largest dental show in the UK, Dental Showcase will this year for the first time include a dental surgery of the future on the show floor, featuring a wide range of the latest solutions and products being demonstrated live. The purpose-built practice will include a reception area, patient information zone and the *piece-de-resistance* -

a fully functioning surgery with arena seating for visitors to experience the latest kit within the setting in which it will be used.

Showcase will again host thousands of professionals as they discover the very latest dental innovations across an unrivalled selection of exhibitor stands. Dental team members will enjoy personalised product

demonstrations, ergonomics, innovations in X-rays, 3D printing, how to make the right purchasing decisions, IRMER and much more. Sessions will be a combination of live demonstrations, interactive lectures, walk-arounds and panel discussions.

In addition to all the other traditional benefits of attending Showcase there will be a new feature located on the show floor which will provide a platform for GDPs to learn from key opinion leaders in implantology, endodontics and orthodontics. The 30-minute seminar sessions will be followed by networking with specialists from each region of the UK.

Witness the future in the present – Dental Showcase 2017 is a must for everyone who needs to be in the know. To register your place at the event, which will take place at Birmingham NEC from 19-21 October 2017, log onto <http://www.dentalshowcase.com/register>.

demonstrations, be able to snap up unbeatable deals and take part in highly engaging lecture sessions whilst topping up their CPD, all under one roof.

While the main thrust of the show will focus on the exhibits, the CPD presentations will include keynotes on the future of dentistry, live



## EXCITING COLOUR REFRESH FOR INTERDENTAL BRUSHES

TePe's interdental brushes have received an exciting colour refresh. The refreshed colours will remain consistent to their current sizing, and same high quality, but benefit from a modern new look.

Alongside the colour refresh, TePe's interdental brushes have also received two further updates. The patented soft neck, on the four smallest sizes, is now highlighted with a semi-transparent colour to further emphasise its highly flexible nature and a new look has been created for the cap, which functions as both a hygienic brush protector and smart handle extension.

TePe has been recommended by the dental profession in the UK for over 15 years. TePe offers a wide range of interdental brushes in nine different sizes to fit a variety of gaps, and are endorsed and recommended by 94% of dental hygienists in the UK.<sup>1</sup>

1. Eaton K A, Harris M, Ross M K, Arevalo C. A survey of dental hygienists in the United Kingdom in 2011. Part 1



- demographics and working patterns as dental hygienists. *Br Dent J* 2012; **213**: E18.

## APPLE AND MILD MINT TOOTHPASTE FOR KIDS

Buddies is an innovative range of oral care products designed for children aged from two years. The toothpaste formula comes in gentle flavours that have been developed with young taste buds in mind: Hint of Mint has a mild butter mint flavour and Apple Fresh is a zingy flavour for children who aren't keen on mint.

Buddies also offer a rechargeable toothbrush for children aged from three which come in two eye-catching designs featuring the Buddies characters, Hint of Mint and Apple Fresh. When loaded with a toothpaste cartridge, pushing down on the collar of the brush automatically dispenses just the right amount of toothpaste onto the bristles. What's more, the charging base not only charges the electric toothbrush but also lights up with a comforting glow as a night-light for your children's bedroom.

The Buddies toothbrush head gently vibrates for two minutes, getting children used to the sensation of electric toothbrushes.



Buddies toothpaste contains 1450 ppm fluoride, which is within the recommended amount for children aged three plus using the pea-sized amount as dispensed by the Buddies toothbrush. Children under three should use a smear of Buddies toothpaste.

CTS Dental Supplies are the exclusive UK distributor of the Buddies range of oral care products.

To place an order, call 01737 765400 or visit [www.buddiestoothpaste.com](http://www.buddiestoothpaste.com).

## A BRUSH THAT BRIGHTENS YOUR SMILE AND YOUR BATHROOM

FOREO have launched the ISSA play, a toothbrush that brightens your smile and brings style to your bathroom. The ISSA play is the perfect introduction to FOREO's oral care line in a battery-powered model. Combining Sonic Pulse Technology with a unique hybrid brush head, the ISSA play is strong on plaque and gentle on gums.

FOREO is the first company to apply the unique properties of silicone to both facial-cleansing and oral-care devices. Every device uses smooth silicone that is body-safe and hypoallergenic, offering safe, gentle and effective solutions. FOREO products are free of phthalates and BPA and silicone is easy to clean and quick-drying, while its nonporous surface prevents bacteria buildup, as well as the absorption of toothpaste and gels, unlike fully nylon bristled brushes.

The ISSA play's silky soft bristles massage the gums and do not scratch tooth enamel. Up to 9,000 high intensity pulsations a minute create micro-sweeps that break up

and remove plaque for effective cleaning while also massaging gums to feel healthier and stronger.

The smart, Swedish designed ISSA play comes in a vibrant range of colours, is ergonomic, lightweight and travel-friendly. It is also 100% waterproof and cost effective, with no changeable brush heads. The ISSA play require two AAA batteries and can be used for up to six months.

The ISSA play is available to purchase for £39 from <https://www.foreo.com/issa-play>.



If you would like to promote your products or services direct to the dental industry in *BDJ Team*, call Andy May on 020 7843 4785 or email [a.may@nature.com](mailto:a.may@nature.com).

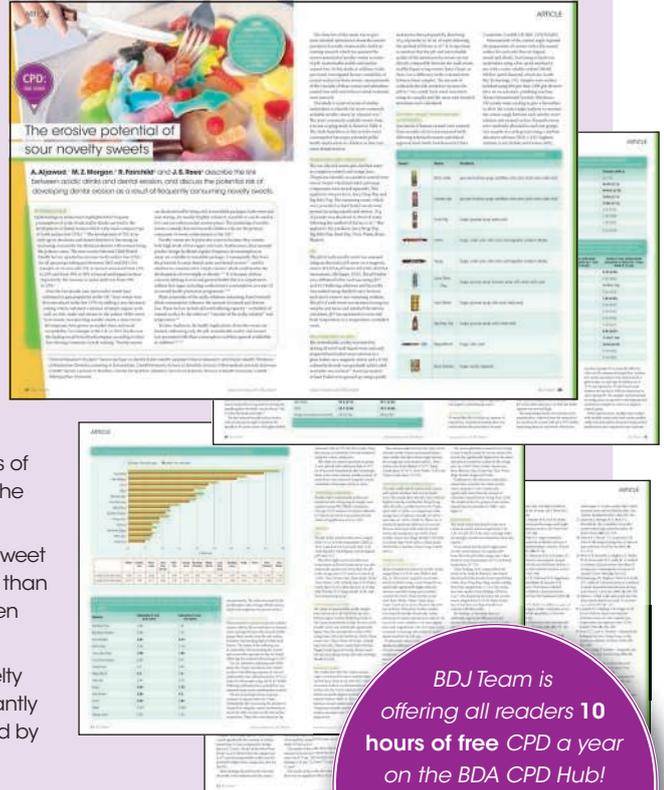
# BDJ Team CPD

## CPD questions: June 2017



### The erosive potential of sour novelty sweets

- Select the **false** statement.
  - sour novelty sweets have the potential to cause dental caries and dental erosion
  - Licked Lips contains citric acid, lactic acid and malic acid
  - the most recent Child Dental Health Survey reported that in 12-year-olds tooth surface loss in incisors increased from 19% to 25%
  - the most recent Child Dental Health Survey reported that in 12-year-olds tooth surface loss in incisors increased from 12% to 24%
- Which of the following has a statistically significantly lower pH than orange juice at body temperature?
  - Big Baby Pop (powder), Brain Blasterz, Toxic Waste
  - Juicy Drop Pop, Push Pop, Tango
  - Big Baby Pop, Brain Licker
  - Brain Licker, Tango
- The contact angle measured between Toxic Waste and the enamel surface was:
  - 15.77°
  - 75.43°
  - 75.4°
  - 2.34°
- Which is **incorrect**?
  - the amount of subsurface enamel loss caused by the novelty sweets with immediate ultrasonication ranged from 0.75-2.3 µm
  - this study showed that the lower the contact angle values of the novelty sweets, the higher the wettability of enamel surface
  - the pH of eight tested novelty sweet solution was significantly lower than the pH of the orange juice when tested at room temperature
  - the erosion caused by six novelty sweets was statistically significantly higher than the erosion caused by orange juice



BDJ Team is offering all readers **10 hours of free CPD a year** on the BDA CPD Hub! Simply visit <https://cpd.bda.org/login/index.php> to take part!

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To take part, just go to <https://cpd.bda.org/login/index.php>.

To send feedback, email [bdjteam@nature.com](mailto:bdjteam@nature.com).

