BDJ Team
DECEMBER 2014

Dental materials

BDA
British Dental Association

December 2014

www.nature.com/bdjteam

CPD: ONE HOUR

Highlights

Regulars

In this issue

GDC ANNOUNCES ARF **DECREASE** FOR DCPs

The GDC has announced that it is increasing its annual retention fee (ARF) from £576 to £890 for dentists and decreasing the fee for dental care professionals (DCPs) from £120 to £116. In June, the GDC proposed that the fee for dentists would increase to £945, and that the fee for DCPs would increase to £128.

The British Association of Dental Nurses (BADN) welcomed the GDC's decision to set a lower ARF of £116 for dental nurses, but says that the fee is still too high in comparison to dental nurse salaries, especially for those who work part time.

The BADN strongly believes that the ARF for dental nurses should be considerably lower than that for hygienists and therapists, and that there should be a reduced ARF for all registrants who work part time.

The British Dental Association (BDA), who has opposed the ARF increase for dentists since it was proposed in June, was granted a judicial review of the GDC's ARF consultation. If the BDA are successful, the Regulations implementing the ARF increase for dentists are likely to be quashed. The review was due to take place on 15 December 2014 in the High Court and the result will be reported in the next issue of *BDJ Team*.

The new fees must be paid by dentists by 31 December 2014 and by DCPs by 31 July 2015.

DO YOU KNOW AN OUTSTANDING DENTAL NURSE?

The British Association of Dental Nurses (BADN) are requesting nominations for their 2015 Outstanding Contribution to Dental Nursing (OCDN) Award. The award will be presented in May 2015 at the Honours and Awards Dinner at the British Dental Conference and Exhibition in Manchester.

To nominate someone for the award, first read the 2015 OCDN nomination guidelines, which can be accessed via the BADN website: http://badn.org.uk/wp-content/uploads/2014/11/BADN-2015-OCDN-GUIDELINES.pdf.

Nominations must be made on the 2015 OCDN Application Form and received by BADN by close of business on 13 February 2015: http://badn.org.uk/wp-content/uploads/2014/11/BADN-2015-OCDN-GUIDELINES.pdf.

BDJ TEAM PROMOTION

DO YOU WANT TO BE A DENTAL HYPNOTIST?

Often the images that first come to mind when hypnosis is mentioned is one of entertainment, counting backwards and audience members doing silly things much to the amusement of the audience. However, did you know it can be applied and used in a dental setting? Some of the earliest accounts of hypnosis being used in a dental practice were in Paris in 1836 when a physician performed an extraction on a patient who was hypnotised.

Today, dental professionals use it in practice to provide many significant benefits for both patient and practice. It can be used to help treat patients with all levels of anxiety and alleviate discomfort and pain during treatment. Recently there have been cases where hypnosis has actually replaced the use of anaesthetic.

Hypnosis can be used by all team members, especially those who work chairside, to bring about a more relaxed state in patients. It can also help reduce and normalise their fear of the dentist and of treatment making patients happier and calmer and more likely to return to the practice.

Sounds like something you would like to try? Then why not come along to the British Dental Association's (BDA's) one day interactive workshop on Friday 30 January 2015 in London led by expert trainer and qualified psychotherapist and hypnotherapist Anthony Asquith?

To find out more about this course please visit www.bda.org/training for full details and learning objectives.

To book your place at this event call the BDA Events team today on 020 7563 4590.

NEW CHAIR OF THE BOARD OF NEBDN

Dental nurse training manager Marie Parker (pictured, right) has been appointed chair of the board of the National Examining Board for Dental Nurses (NEBDN).

Marie, who works at King's College Hospital in London, takes over the role from John Darby (pictured, left), Associate Dean of the Dental Department at Health Education Kent Surrey and Sussex. Lindsay Mitchell, who has many years' experience in educational research and development, has been appointed deputy chair.

Marie qualified as a dental nurse in 1994 and has worked in various areas of dentistry. She has been a dental nurse trainer since 2000 and has examined for NEBDN since 2001. Marie gained her master's degree in education in 2009 and has developed and delivered a variety of courses and qualifications for the dental team.

NEW GUIDELINE TO IMPROVE COMMUNITIES' ORAL HEALTH

NICE published a new guideline in October calling on local authorities to improve the oral health of their communities through better advice and support in oral hygiene.

The guideline states that local authorities should consider supervised toothbrushing and fluoride varnishing schemes for areas where children are at high risk of poor oral health.

The full guideline can be viewed at http://www.nice.org.uk/guidance/ph55.

Do you have a news story that you would like included in BDJ Team*? Send your press release or a summary of your story to the Editor at bdjteam@nature.com.*

Ed's letter

Dental materials: a recommended CPD topic for dental technicians, p14

Welcome to the **tenth issue of *BDJ Team*** - and also the final issue of 2014! There are now a full **ten free hours of CPD** available at www.nature.com/bdjteamcpd and they will remain available until the end of **2015**!

It is now over a year since I announced in *Vital* (our print magazine published from 2003-2013) that *BDJ Team* would be launched in March 2014, and what a busy year it has been. Publishing one issue a month has certainly kept me on my toes! I set out to publish a broad range of content for dental care professionals in *BDJ Team*, including core CPD, inspiring people stories, relevant clinical research, news and information on dental products. I hope that you are pleased with the results!

How to score core CPD in 2015, p19

In 2015 another ten digital issues of *BDJ Team* will be published online, each with an hour of CPD. To make sure you never miss new content, if you haven't already done so, sign up for the *BDJ Team* e-alert, now explained on a brand new page of the *BDJ Team* website: www.nature.com/bdjteam/ealertsignup.

The lowdown on e-cigs on page 22

As always, if you have an idea for an article you would like to see in the magazine, would like to write an article, be interviewed, review a book or event, or have any feedback or questions (have you seen our FAQs page? www.nature.com/bdjteam/faqs) then do get in touch!

In the meantime I would like to wish you all a wonderful festive season and a peaceful New Year.

Christmas in the dental practice, p5

Kate

Kate Quinlan
Editor
k.quinlan@nature.com

bdjteam2014130

THE TEAM

Cover
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Editor-in-Chief
Stephen Hancocks OBE

Editor
Kate Quinlan

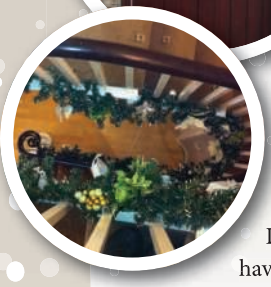
Production
Art Editor: Melissa Cassem
Production Editor: Esther McKeown
Digital Editions Production Controller: Emma Jones

Advertising
Advertising Account Manager: Andy May, +44 (0)20 7843 4785, a.may@nature.com

Publishing
Publisher: Rowena van Asselt
British Dental Journal
The Macmillan Building
4-6 Crinan Street
London N1 9XW

Christmas IN THE DENTAL PRACTICE

We asked a selection of dental professionals how they celebrate the festive season.



Dr Peter Doyle

Principal, Crosby Dental, Liverpool. Peter runs Crosby Dental with his wife Lisa who is the practice manager. There are three associates, an in-house hygienist and a 'team of wonderful dental nurses'.

My team love Christmas time and have already started decorating the practice (see pictures)! We are hoping to get the final touches finished by early December. Each year, we have a staff Christmas outing and secret Santa. This year we are heading to a new hotel and restaurant on the docks called the Titanic which is the new hot spot in Liverpool.

We are currently running our Mouth Manicure Season which is a time-limited package combining tooth whitening and a hygiene appointment for a discounted price until 31 December.

Over the festive period we do see an increase of people with cracked teeth, broken on things like nuts and crusty bread, so emergency appointments are often a priority.

We recently donated some vouchers to a local primary school for a their new minibus and always like to try and get a table together for the Marina Dalglish appeal ball at Knowsley Hall in Liverpool. The ball raises money for cancer care in Merseyside and is held in February.

As a family, Christmas is a big deal and we like to go to church on Christmas day. It's also my birthday on Christmas Eve but I tend to work during the morning and double celebrations begin later on.

To maintain good oral health over the festive season I recommend lots more flossing and interdental brushing, especially if you are hoping to get underneath the mistletoe at a Christmas party!

Crosby Dental is open on the morning of New Year's Eve, but as for celebrations we tend to do that with friends and like to stay local in Liverpool.

We recently had dental business consultant Sheila Scott at the practice so we will be implementing what we learned from her in 2015 for sure.

'To maintain good oral health over the festive season I recommend lots more flossing and interdental brushing, especially if you are hoping to get underneath the mistletoe at a Christmas party!'

Fliss Cleaver *(BDJ Team reader panel)*

Dental practice manager/coach, Plymouth

We decorate our practice with baubles and lights. One day we finish early and all head out for Christmas lunch which goes on into the evening. I think Christmas jumpers are a must this year!

We find that the run up to Christmas is the busiest time of year. Everyone wants their lab work done in time for Christmas and there are lots of hygiene appointments.

Our practice always supports charities - not just at Christmas - especially the local children's hospice.

At Christmas itself I'm usually in the Outer Hebrides visiting my Mum! I look forward to catching up with loved ones from near and far.

When it comes to looking after my oral health over the festive season, I'm afraid I'm a bit naughty! But I try not to pick throughout the day and eat cheese after sweet treats to neutralise the mouth.

On New Year's Eve I'm planning to watch fireworks in Dartmouth with loved ones. In 2015 I'm planning to move and to complete my Coaching diplomas.

'This time of year brings the temptation of delicious treats, so we advise patients if they are going to enjoy a chocolate or festive treat to have them at the same time as a main meal.'

Stacy Bennett

Dental nurse, Worthing

A welcoming big green fake Christmas Tree with pretty baubles and gold beaded garlands strung around it with sparkling lights shining through sits in the porch of Grand Avenue Dental Practice, Worthing, West Sussex. It's that time of year again and each surgery loves to decorate their rooms with Christmas decorations, from a little tree to a lit-up snowman.

To get us all merry we have a dress up Santa day. This helps us to raise money for St Barnabas Hospice, a local charity. Due to the size of Grand Avenue Dental Practice and the number of staff, for quite a few years now we have had a collection for a charity instead of giving each other Christmas cards. The charity we have chosen this year is the Alzheimer's Society, due to it being very close to the hearts of some staff members.

Usually the week leading up to Christmas, one lunch time, the whole team comes together in the waiting room for

Stacy (middle row, second from right) on dress up Santa day

Secret Santa and a raffle and the partners treat us all to pizzas and buck's fizz. This year we are also having a masquerade Christmas party the last Friday before Christmas.

This time of year brings the temptation of delicious treats, so we advise patients if they are going to enjoy a chocolate/festive treat to have them at the same time as a main meal. We recently had a visit from a Colgate rep giving us samples of the new Colgate maximum cavity protection to give to patients. This toothpaste also has a sugar acid neutraliser which is brilliant especially at this time of year. I have started to use it twice a day, alongside my daily flossing routine.

The practice has dentists on call for any emergencies out of hours. We do see a few more emergencies at this time of year with people just checking any problems will be okay to leave until the New Year. I think some of the worst cases are people who break a front tooth or are in a lot of pain from a dental abscess; there is absolutely no way you can leave them over the holiday period.

At my local church each year we collect for the shoe box appeal that I help with, which is really rewarding to pack up gifts for the less fortunate.

On New Year's Eve I will be seeing it in with my family and friends. I'm not a big lover of New Year's Eve though - I prefer the build up to Christmas.

Merry Christmas and a Happy New Year to you all.

Rachael England *(BDJ Team reader panel)*

Dental hygienist, Dubai

I've been living in Dubai for just over a year. I'm still working as a dental hygienist and about to start studying for an MSc in Public Health.

Despite living in the Middle East and the average temperature being over 20°C in December, we still put up a Christmas tree in the waiting room and our company treats us all to a Christmas party. There are over 300 staff at my clinic so it's a good one! I've downloaded plenty of Christmas songs for the iPod to start playing on 1 December.

Working in Dubai is not much different to being at home in the UK in the clinic, although you can tell where patients are from by their dentistry, which is interesting. I'm sure we'd all agree that the last minute dental emergencies just before Christmas are pretty annoying.

I have volunteered twice for Crisis at Christmas, as a dental nurse and as a dental hygienist. I would encourage everyone to take part; the clients are so incredibly grateful and it's a humbling experience which rekindles passion for the profession [http://www.crisis.org.uk/pages/volunteer-christmas.html].

After joining the Royal Air Force when I was 18, going home for the festive season has always been a very special time of the year for me. This year will be no different and I'm flying back to the UK from Dubai on Christmas Eve to spend time with my family.

Regarding all the tempting treats over Christmas, I say a few days' indulgence will not do any harm, so pass the Babycham!

I'll be back in Dubai for New Year's Eve, spending time with my urban family and trying to avoid the awful Dubai traffic. I will be beginning my MSc course early in January 2015, so the next two years will be dedicated to procrastination and studying. After that I hope to work in the public health field - we'll see how it goes!

Asif Chatoo

Specialist in Orthodontics. Asif works at The London Lingual Orthodontic Clinic with one dental hygienist, two orthodontic nurses, an orthodontic therapist, a receptionist and a practice manager.

We always have a staff outing in December and we tend to choose a new restaurant in London. We like to decorate the practice and send and receive Christmas cards. During the year, we send out regular newsletters to patients and colleagues and December's newsletter has a festive photograph taken in the practice (pictured, below).

As a specialist referral practice, life becomes quieter over Christmas. Patients' treatments are planned so they don't need an appointment between 24 December and 2 January. It's time to catch up on admin.

We like to donate to charities which are close to the hearts of our patients. In 2014 we supported a patient who undertook the courageous task of rowing across the Indian Ocean in aid of Save the Elephants. For two months we donated to the cause every time a hygiene appointment was booked with us.

I like to spend time with my wife and children at any time of the year but especially Christmas. In the past I worked in a soup kitchen over Christmas and I found it very rewarding. This is something I have put on hold while my children are young.

By nature I am a 'moderation' person and don't have a sweet tooth. Like a lot of health professionals, I brought up my children so they had no exposure to sugar or sweet drinks while they were little. My eldest started school this year and confounded her teachers when she turned down a chocolate biscuit! I recently gave a talk at her school about good dental hygiene. My daughter only gave me eight out of ten as I failed to mention the Tooth Fairy!

Three of the team here took part in a Tough Mudders Event in the summer – they don't opt for a quiet life! Practice manager Carla told the story in our blog: http://preview.tinyurl.com/o5awhrj.

I am looking forward to doing more diagnostic work in 2015 and entrusting routine aspects of patient treatment to our new orthodontic therapist Fiona, who has recently joined the team. We are all having ongoing training in SureSmile, one of the newer systems we are using here.

bdjteam2014131

Sugar-loaded messages in preteen magazines

K. J. Chapman,[1] **R. M. Fairchild**[2] and **M. Z. Morgan**[3] investigated food references in UK children's magazines from an oral health perspective.

INTRODUCTION

There is evidence that young people are consuming nutritionally poor diets, predisposing them to obesity and other health related problems like dental caries.[1-3] Currently, sugar consumption is high on the public health agenda both globally and nationally. At present, UK dietary reference values state that free sugars (defined as sugars added to foods, for example, sucrose, glucose and fructose and sugars naturally present in fruit juices, such as glucose and fructose[4]) should provide no more than 10% of the total energy intake for children and adults who do not consume alcohol (11% for those who do).[5] However, there are consultation guidelines produced by the World Health Organisation (WHO) and the UK Scientific Advisory Committee on Nutrition (SACN) which recommend reducing free sugars to 5% of total energy.[4,6]

Several large scale systematic reviews commissioned by the WHO and the UK Food Standards Agency have found that food and drink promotion in magazines and on television has a profound effect on children's food

[1,3]*Applied Clinical Research and Public Health, College of Biomedical and Life Sciences, Cardiff University, School of Dentistry, Heath Park, Cardiff, CF14 4XY;* [2]*Cardiff Metropolitan University, Department of Healthcare and Food, Cardiff, CF5 2YB*

preferences, purchase behaviour and consumption.[7-9] Also, the evidence confirms that the majority of food advertisements within the media represent energy dense, high fat-salt and sugar (HFSS) foods.[7] From an oral health standpoint the frequent consumption of high sugar foods (in particular free sugars) predisposes to the development of dental caries.[2,10,11] Additionally dental erosion is becoming more prevalent with the increasing popularity of acidic 'fizzy' sweets and carbonated drinks[12,13] and the well documented link between increased consumption of foods with low pH and erosive tooth wear.[14]

Advertising

Advertising to children is fundamental to confectionery and food and beverage companies, especially those producing foods high in HFSS. Children are 'vulnerable as a consumer group due to their limited ability to recognise the persuasive intent of advertising';[15-17] they are both 'receptive and responsive' to advertising campaigns.[18,19]

In the past, food advertising campaigns have largely been focused on broadcast media, that is, television.[8,20] However, since the introduction of the 2006 UK Ofcom television regulations[21] companies have been restricted from advertising HFSS foods during children's television viewing times. Consequently, food and beverage companies have been looking for alternative advertising outlets, predominantly based in the non-broadcast media, including: the Internet, SMS, other forms of print media, supermarket check-out areas, point of sales, posters and magazines.[22-24]

Magazines

Magazines are popular with children: the 2010 Mintel report documented that 82% of children read comics or magazines and 18% of these buy magazines themselves, with the remaining being bought by parents or grandparents.[24] Furthermore, UK research indicates that parents view children's magazines as trustworthy and educational.[25]

Magazines have advantages to companies wishing to market their products, including the fact you can read them more than once, you can take them anywhere with you, and you can pass them on and share them with others.[26] They are the only form of media where a 'free' sample can be supplied. This feature is popular with children: Mintel report that six out of ten children are attracted by free cover mount giveaways[24] and this strategy has been heavily used by confectionery companies Haribo, Chewitts and Fruitella. Cowburn and Boxer reported that where food related 'cover mounts' were used in the UK all were free gifts of confectionery and were aimed at younger readers.[27]

More recently, Australian authors have found that food marketing in children's magazines is moving from clearly identified advertisements into the editorial and general content,[17] thus advertising is becoming more subliminal to this vulnerable audience.

Currently, advertising within magazines published within the UK is regulated by the Committee of Advertising Practice (CAP), a self-regulatory body that enforces the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing.[28] This code does not currently distinguish between healthy and non-healthy foods being advertised in magazines or account for the covert advertising apparent in editorials or wider general magazine content.

In the UK the majority of content analysis studies relating to food advertising and nutritional themes within children's media have been based on television,[7-9] leaving magazines a relatively unexplored medium. Those studies focusing on magazines have mainly addressed formal advertisement content neglecting the editorial and general content of the magazine.[27,29]

Therefore, the objectives of this study were to:

- Assess the amount of HFSS food and drink children are exposed to while reading magazines targeted to their age group;
- Assess the positioning of food references detrimental to oral health with regards to advertisements, editorial or general magazine content.

Boys aged 4-11	Circulation per annum	Cost per issue	Number of pages
Moshi Monsters	162,838	£2.99	52
Ben 10	64, 671	£2.60-4.99	24-36
Simpsons comic	64,078	£2.99-3.99	52-68
Match!	46,569	£1.99-2.99	68-100
Girls aged 4-11			
Sparkle World	66,752	£2.55-3.99	52-64
Animals and You	32,376	£2.99-3.99	32-44
Girl Talk	51,463	£2.50-3.50	36
Disney Princess	63,907	£2.25-3.99	32-40
Preteens aged 11-12			
Top of the Pops	84,782	£2.99-3.99	64-68
Toxic	41,521	£2.99-4.99	40-48
Go Girl	41,095	£2.50-3.99	32-44

Table 1 Description of magazine sample in terms of target audience, circulation, cost and number of pages[30]

	Count of food category	Sum of repeats
Food references 'detrimental to' oral health	**221**	**374**
Baked goods	78	181
Sweets	66	86
Combination	30	41
High sugar drinks (including fizzy)	20	31
Ice cream	14	18
Chocolate	12	14
High sugar cereals	1	3
Food references 'detrimental to' wider health	**27**	**30**
High fat and/or salt	21	22
Negative vegetable association	2	4
Alcohol	2	2
Unhealthy portion sizes	2	2
Healthy images	**63**	**104**
Fruit	27	56
'Balanced meal' image	20	23
Exercise	8	12
Water as a drink	2	5
Vegetables	3	4
Seafood	2	3
Anti-junk food	1	1
Grand total	**311**	**508**

Table 2 Food references within each food-group category

METHODS

Eleven of the most popular UK magazines were purposively selected to cover the reading of children of primary school age through to 'preteens' (4-12 years old). Magazines were selected according to the Audit Bureau of Circulations figures for the second half of 2011.[30] Table 1 shows a description of the magazine sample. The magazines were purchased at four separate time points to reflect seasonal change and the school holidays. The purchase dates were 30 March 2012, 20 July 2012, 31 October 2012 and 18 December 2012.

All magazines were analysed within a week of purchase, and every page (including front and back covers, in addition to the cellophane wrapping) were examined using content analysis informed by an inductive approach. As the name implies, inductive content analysis relies on inductive reasoning, in which themes emerge from the raw data through repeated examination and comparison.[31,32] A pilot study was carried out by the primary and tertiary researcher. This involved looking through a small selection of children's magazines to begin developing themes, categories and coding schemes.

Themes, appropriate verbatim quotes and counts of food references observed were all recorded on an Excel spreadsheet. Unique references to foods were logged and the total number of times the same product/advert appeared was also recorded and referred to as 'repeats'. Photographs from the magazines were also used to illustrate findings.

In terms of verification 'the nature of qualitative analysis means that it is subjective, which raises the question as to whether qualitative researchers should have their analyses verified or validated by a third party'.[31] However, in this study it was decided that a second qualitative researcher should analyse 10% of the magazines independently. The number of discrepancies found were sufficiently low to validate the results (<5% disagreement).[31]

Foods (including drinks) were classified as being 'healthy' or 'non-healthy' using the Foods Standards Agency nutrient profiling model of 2011.[33] Then within the unhealthy category if the food contained high sugar (that is, more than 20% total sugars[33]) or high sugar and low pH[13,14] (for example, non-diet fizzy drinks, acidic sweets) it was considered to be detrimental to oral health. The category 'combination foods' was used in this study to refer to advertisements or features where multiple HFSS foods were seen; for example, an image of a picnic spread with crisps, chocolate and fizzy drinks.

For the analysis of the food references detrimental to oral health, the positioning of content was classified in one of three ways:

- 'Advertisements' were direct advertisements for mainly branded food products but also for books, magazines and toys with associated food imagery
- 'Editorial content' were counted as pages in the magazine where the editor had chosen certain seasonal items to make photographic collages of 'what's hot now'. The pages frequently show foods, fashion accessories, seasonal goods and contain competition prizes and celebrity endorsements
- 'General content' contained non-branded food placement, including activity pages with their suggested recipes, games and crafts. Also illustrations and cartoon images of non-branded food/drink.

Fig. 1 Selection of recipes with high sugar content sourced from the magazines

RESULTS

Types of food references found within magazines

A total of 508 references to food and beverages were recorded in the 44 magazines. These included repeated references; overall there were 311 unique food references (Table 2).

73.6% (374/508) of total references were for foods detrimental to oral health owing to their high sugar (± acid) content. 5.9% (30/508) were considered unhealthy due totheir fat or salt content. 20.5% (104/508) were for healthy food (Table 2).

The majority of total food references within the magazines were for baked goods, 35.6% (181). Sweets followed as the second most common reference with 86 counts (16.9%). Fruit was the third most frequent reference with 56 counts (11%, Table 2).

Activities for children

The magazines frequently contained activities for children, recipes being a popular example. During this study 20 recipes were recorded; 17 of these were for baked items (such as cakes or cookies) or other foods high in free sugars (for example, toffee apples, milkshakes made with gummy sweets, homemade fudge). A recipe from *Moshi Monsters* October edition showed a fruit smoothie, but this was classified as a high free-sugar recipe due to the addition of 'jelly snakes' gummy sweets (Fig. 1). Only three recipes were considered to be 'healthy': one recipe for vegetable soup found in the December edition of *Moshi Monsters* magazine; another for a fruit smoothie documented in the March edition of *Go Girl*, and finally a recipe for frittata in the March edition of *Sparkle World*.

Free gifts

All but one of the magazines (43/44) had a free gift. 36.4% (16/44) of magazines analysed included free sweets. Half of these sweets were Haribo Tangfastics, a confectionery item falling into the high sugar and low acidity category, making them the most frequently recurring confectionery.

Food references considered to be detrimental to oral health

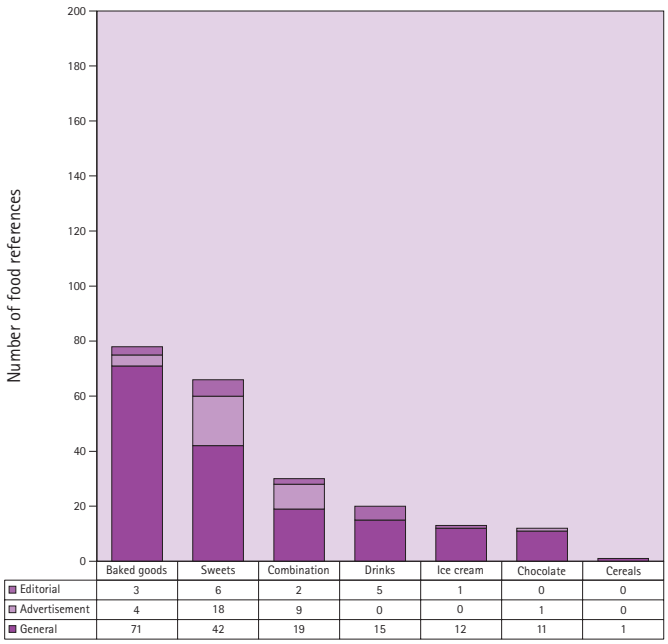
There were 221 unique food references which were considered to be detrimental to oral health (Table 2). Baked goods (78), sweets (66) and the combination category (30) predominated.

'DURING THIS STUDY 20 RECIPES WERE RECORDED; 17 OF THESE WERE FOR BAKED ITEMS (SUCH AS CAKES AND COOKIES)…'

Position of food references detrimental to oral health

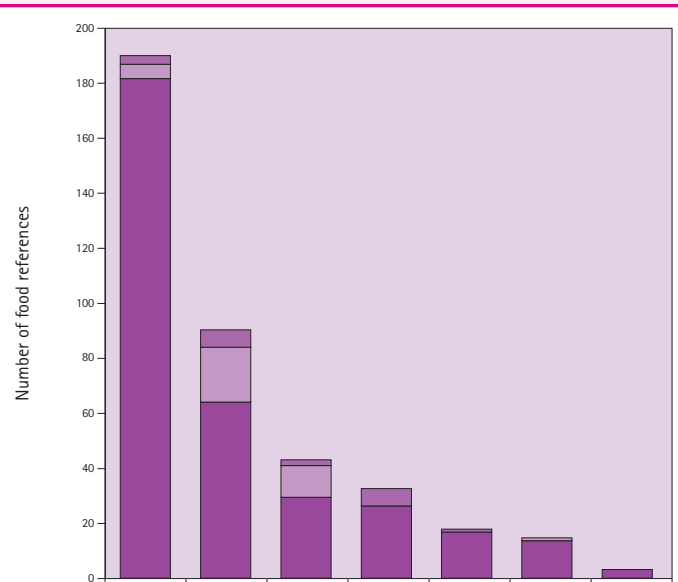
Out of the 221 unique references to food detrimental to oral health only 32 were direct advertisements (14.5%, Fig. 2). Out of the 374 total references (including repeats) there were only 36 (9.6%, Fig. 3) advertisements. The remainder of the food references detrimental to oral health were either found in the editorial pages or the general content of the magazine. The distributions of the unique and repeated references to foods detrimental to oral health by category and positioning in the magazine are presented in Figures 2 and 3 respectively. Repeated references for food products harmful to oral health were primarily located within the general content (Fig. 3) of the magazines. Baked goods predominated with 78 unique references and 181 repeats, indicating an average of 2.3 repeats for each of the baked goods across the 44 magazines.

Fig. 2 Number of unique references to foods detrimental to oral health by food category and positioning within the magazine



	Baked goods	Sweets	Combination	Drinks	Ice cream	Chocolate	Cereals
Editorial	3	6	2	5	1	0	0
Advertisement	4	18	9	0	0	1	0
General	71	42	19	15	12	11	1

Fig. 3 Number of total references (including repeats) to foods detrimental to oral health by food category and positioning within the magazine



	Baked goods	Sweets	Combination	Drinks	Ice cream	Chocolate	Cereals
Editorial	3	6	2	6	1	0	0
Advertisement	5	19	11	0	0	1	0
General	173	61	28	25	16	13	3

Common themes and quotations

Moshi Monsters had a particularly sugar laden theme running throughout: advertisements, editorials and general content. Indeed, the characters themselves come in the form of an ice cream, a gingerbread man, a cupcake, a gumball machine and many others. Images of cupcake canyons were accompanied by text: 'Explore the wonders of cutie pie canyon. 300 Rox gets you a room at the Gateaux Marmont. Don't forget your toothbrush!' (March edition p.6). A character called 'sweet tooth' quoted: 'these boogy bags are perfect for carrying around your sweet treats'.

Characters were associated with other sugar-orientated statements such as 'likes eating glump cakes', or 'likes sweets, hates vegetables'. It is of note that the company who have developed *Moshi Monsters* is called 'Mind Candy'.

The Simpsons comic also appeared to have a particularly cariogenic theme focusing on baked goods high in sugar, such as iced doughnuts, pancakes and cakes.

Celebrity endorsement

Go Girl, *Girl Talk* and *Animals and You* used celebrities to endorse unbranded unhealthy foods. For example, Rihanna 'loves cheesecake', Jessica Ennis puts 'the salad on top of the chocolate' in her shopping trolley and Jade from Little Mix was portrayed as having her cheeks 'full of sweets' (Fig. 4).

Magazines aimed at a slightly younger target market, such as *Disney Princess*, *Sparkle World* and *Animals and You* contained frequent unbranded references (n = 46 across the three magazines) to unhealthy food in cartoon imagery and activity pages, for example recipes, colouring in pictures, counting icons etc.

Magazines with very little food content or promotion of unhealthy food included *Ben 10*, *Top of the Pops* and *Match*. Healthy references were infrequent and no themes emerged, just occasional pictures of fruit in comics and activity pages. Fruit references were most common in *Sparkle World* which is aimed at younger primary school aged girls. Exercise promotion was sparse, with all of the references counted (12/508) being in the July editions of *Girl Talk* and *Go Girl* coinciding with the 2012 Olympics.

DISCUSSION

This study confirms findings of other research on children's magazines[17,22,23,27] that unhealthy food references (that is, references to HFSS foods) are far more common than healthy food references (79.5% *vs.* 20.5%). References to foods high in sugar, specifically related to oral health, were frequently documented in the magazines constituting 73.6% of all food references. Baked goods were the most commonly referenced food item in contrast with the findings of Kelly and Chapman[23] who documented ice cream, 'fizzy' drinks and confectionery as the most frequently appearing references. Carbonated sugary drinks did not feature frequently in our study, with only 31 total references: a positive finding in relation to dental erosion.

Reference to high sugar foods in the magazines most frequently came under the 'general references' category for unbranded

products (77.8%), which included recipes, illustrations, generic text and activity pages. It is known that non-branded food references can act as influential messages, with the repetition normalising these foods to children making them highly desirable.[23] Showing cartoon characters and celebrities associated with unhealthy foods (Figs 4-5 further strengthens the desirability factor.[23]

Direct advertisements accounted for only 14.5% of all unique references detrimental to oral health; all of these were for confectionery, including Haribos, Chewits, Fruitella and Moshi Monsters Confectionery. This is in contrast with the work of Cowburn and Boxer[27] who reported a range of food types being advertised such as sugary breakfast cereals, soft drinks, and fruit and vegetables.

High free-sugar foods predominated in the editorial and general content of the magazines in this study, accounting for 85.5% of all references detrimental to oral health. These covert advertising techniques mirror those described by other researchers in Australasia[16–19] but have not been documented previously within the UK. Furthermore their use in the UK appears to be more frequent when compared with the southern hemisphere: Jones *et al.* (2012) reported that 69% of all branded food references in Australian children's magazines were not clearly identifiable as advertisements.[17] Magazine editors, journalists and illustrators are responsible for the editorial and general content of their magazines. Without regulation subliminal placement of advertisements within editorial and general content leads to 'advertorials' which are known to confuse children and parents alike.[22,34] This study, like others, indicates that print media regulation may therefore need to cover more than just the direct advertisements.

Free gifts were a common occurrence with 97.7% of magazines including them. Over a third of the magazines had sweets as one of their free gifts, and half of these free sweets were Haribo Tangfastics. Sour sweets have a low pH and with frequent consumption are capable of causing dental erosion as well as dental caries.[13] It is of concern that so many magazines came with confectionery. Often parents or grandparents buy magazines as an educational tool and as a consequence they are inadvertently supplying their children with sweets.[16]

Commendably, there were some healthy food references (20.5% of all references), including recipes, fruit and vegetables in comic strips and illustrations of well balanced meals. A recent study of television advertising has reported that the advertisement of healthy foods can be associated with increased fruit and vegetable intake.[35] While this evidence could be used to encourage editors to increase the healthy content within their magazines, it is unlikely to be economically viable while the sugar and confectionery industry provide economic stability to the magazine companies promulgating products that children enjoy. Concern is mounting in the UK with consultations[4] and lobbying for reductions in sugar intakes[36] which will inevitably require interdisciplinary action in order to reduce the current national intake from 15-5%[2,4,6] or even 3%.[36]

Fig. 4 Celebrity images in *Girl Talk* (July and October 2012), *Go Girl* (October 2012)

Fig. 5 Examples of advertisements contained within the magazines

This study has been pragmatic and systematic and as such presents an accurate snapshot of food content within the magazine sample analysed. However, there are some limitations which should be taken into account when interpreting the findings. It is recognised that 'human coders are subject to fatigue and are likely to make more mistakes as the coding proceeds'.[32] However, analyses were cross-checked by the primary researcher throughout the study and by the tertiary researcher who validated a proportion of completed data analyses.

The way foods are categorised according to the FSA nutrient profiling model[33] has been questioned in the past by nutritionists who have argued there is no such thing as an 'unhealthy' food, but more an 'unhealthy diet', with the phrase 'everything in moderation' springing to mind. However, the nature of this study dictates that there had to be a way to categorise foods and the FSA's method was considered to be the most objective approach.

More studies are needed to investigate the impact advertisements and non-branded references have on children. Magazines can be read again and shared, making their true impact harder to assess.[26] Furthermore, studies are needed to assess the impact of the culmination of adverts and themes from television, magazines, internet and mobile phone applications etc. Alone the impact may be relatively insignificant, but in conjunction the effect is likely to be much greater.[37]

CONCLUSION

National governments should be the stakeholders in the development of policy, and they should be responsible for implementation, monitoring and evaluation.[38] The UK Action on Sugar lobby group have recommended that: '…the body of scientific evidence about the dangers of excessive refined added sugar consumption becomes translated into policy by the Government and relevant professional organisations.'[36]

The current UK Committee of Advertising Practice (CAP) regulations are self-regulated and vague in terms of print media. They do not clearly define HFSS foods and only concentrate on direct advertisements. This will not be successful in reducing children's exposure to HFSS food advertising. Regulations should account for the overwhelming evidence base that excess free

sugars cause both obesity and dental caries and national governments need to support such regulation. However, regulation alone is unlikely to achieve behaviour change.

A more pragmatic approach to change could draw upon the UK national salt reduction campaign. This is coordinated by the UK Food Standards Agency and involves a consumer education programme relating to salt consumption and voluntary salt reduction targets for the food industry. These have achieved significant reductions in salt intakes over the last ten years.[39,40]

Public health workers, dentists and parents all need to be aware of media trends and what children are exposed to in their magazines. Public health workers need to be informed to enable the safeguarding of children's wider health when developing recommendations to the government. Dentists and dental care professionals also need to be aware of these media trends to enable them to tailor their prevention advice to parents, and to warn parents of the potential contradiction magazines have to their best efforts at improving healthy eating habits.

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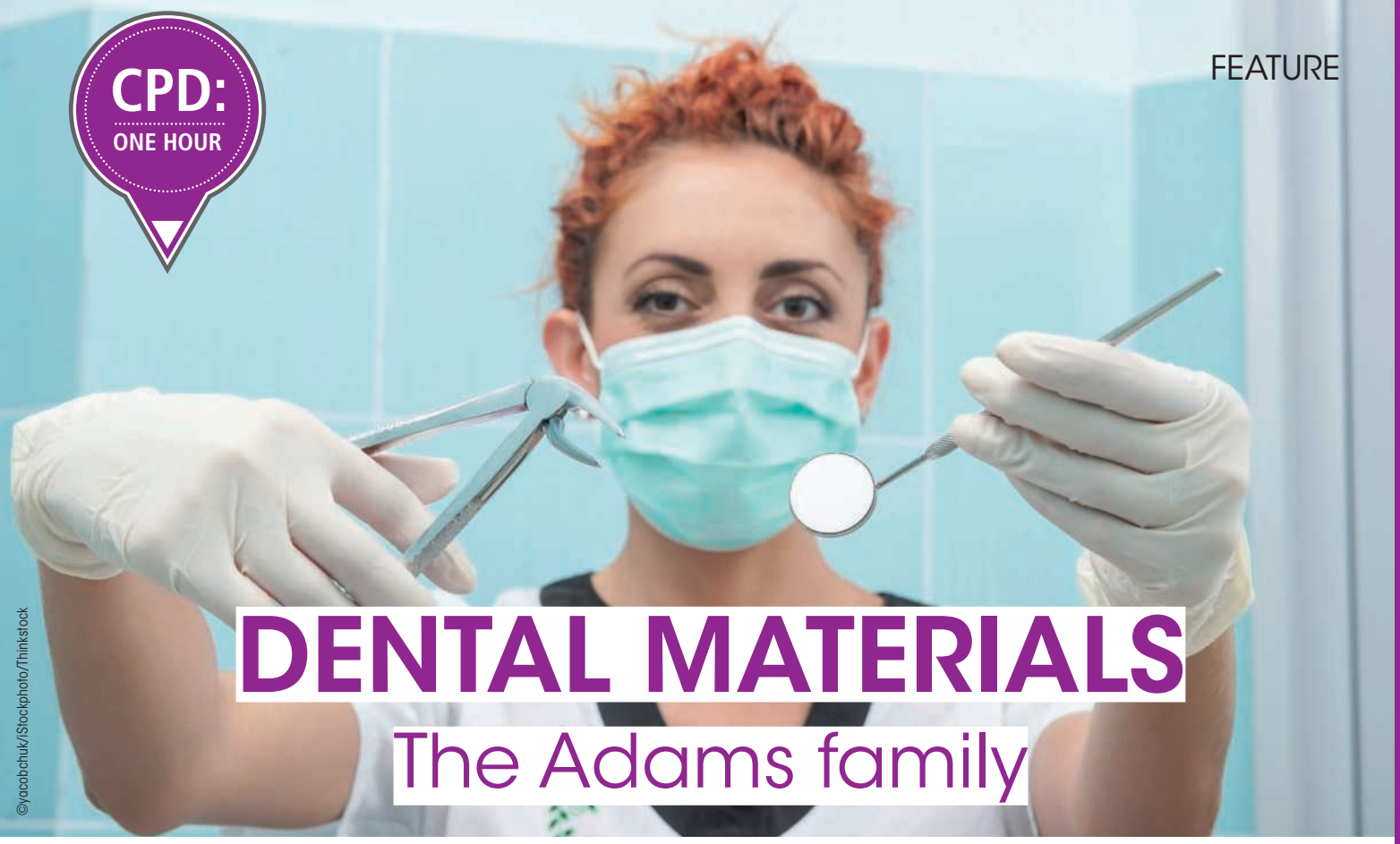

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DENTAL MATERIALS

The Adams family

J. I. J. Green[1] looks at the modified arrowhead clasp and related components.

INTRODUCTION

Clasps are retentive removable appliance components that work by engaging the areas beneath the most bulbous parts of a tooth, called undercuts. The first orthodontic clasp consisted of a loop of wire that fitted to the buccal gingival margin but the lack of buccal undercuts in teeth that are not sufficiently erupted led to attempts to design a clasp that would use the mesiobuccal and distobuccal undercuts, which are accessible when a tooth is less well erupted. The first such design was introduced by Victor Hugo Jackson in 1906.[1] The Jackson clasp is a simple orthodontic clasp but with squared corners that engage the mesiobuccal and distobuccal undercuts. Next came the Crozat clasp in 1920. Designed by George B. Crozat, it consists of a plain orthodontic clasp with an additional soldered piece of wire that engages the undercuts.[2] This was followed by the arrowhead clasp by Artur Martin Schwarz in 1938 that consists of a series of arrowheads and engages the mesiobuccal and distobuccal undercuts of two adjacent teeth.[3-5] In 1949 these concepts were largely eclipsed by a design by Charles Philip Adams[6-11] that dramatically improved the retention of removable appliances[12] and remains the most popular retention component for removable orthodontic appliances. This article gives a review of the Adams clasp and its related components.

THE ADAMS CLASP

Although a distinct component in its own right, the Adams clasp was seen as a development of the Schwarz arrowhead clasp and was introduced as the modified arrowhead clasp.[6] Adams was a lecturer in orthodontics at Liverpool Dental School so the clasp has also been referred to as the Liverpool clasp and the term universal clasp has been used too. Unlike with Schwarz's design, the arrowheads of the clasp do not fit beneath the contact points of two adjacent teeth but work by engaging the mesiobuccal and distobuccal undercuts of a single tooth either standing in isolation or in proximal contact with the adjacent teeth. Adams also reported the following five benefits of his clasp:

1. Takes up minimal space in the buccal sulcus and in the baseplate
2. Can be used on any primary or permanent tooth
3. Can be used on a semi-erupted tooth
4. Strong, although resilient enough for every retention purpose
5. Construction does not require specialised pliers.

The Adams clasp is usually made with 0.7 mm diameter hard stainless steel wire but 0.8 mm gauge has also been advocated.[13] It is most commonly made for molars and premolars but can be used to clasp any tooth. Adams recommended that clasps for primary teeth should be made in 0.7 mm wire[10,11] but 0.6 mm wire can also be used. Adams also suggested the use of 0.6 mm wire for canines but thought that the temptation to clasp anterior teeth should be resisted.[11] A study of patients who were treated with reverse headgear appliances found that using Adams clasps on the maxillary central incisors could effectively prevent downward dislocation of the appliance when extra-oral traction force was applied.[14] In practice, the Southend clasp[15] is more commonly used for anterior retention.

The Adams clasp is predominantly used as a retentive component in orthodontics but is also used to retain appliances such as partial dentures,[16] obturators[17-20] and mandibular advancement appliances for patients with obstructive sleep apnoea.[21-24]

CONSTRUCTION

Preparation of an Adams clasp can be divided into five parts: model preparation, bridge, arrowheads, occlusal region and retentive tags. While the photographs that accompany this technique illustrate the construction of an Adams clasp for a permanent first molar, the same principles are applied for any tooth.

Model preparation

Before the clasp is constructed the mesiobuccal and distobuccal undercuts are identified. If

[1] *Maxillofacial and Dental Laboratory Manager, Great Ormond Street Hospital for Children*

Fig. 1 A right angle is formed in a straight piece of 0.7 mm diameter hard stainless steel wire and held against the tooth to anticipate the bridge length

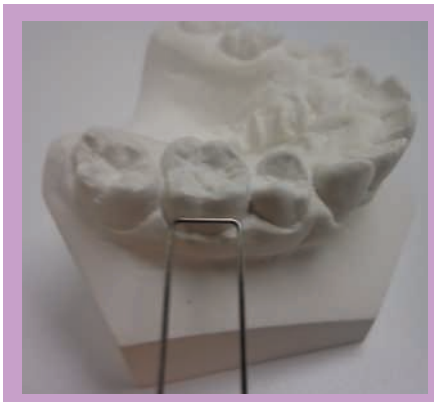

Fig. 2 A second right angle bend is made at the point of the second undercut

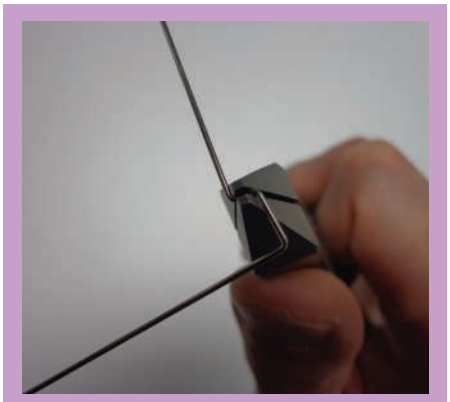

Fig. 3 An arrowhead is formed by first bending the wire at a right angle

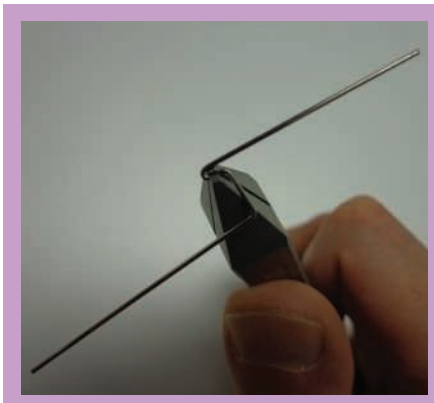

Fig. 4 The arrowhead is completed by holding the bridge of the clasp firmly against the beaks of the pliers and bending the wire through another right angle while using firm pressure on the wire near the first bend

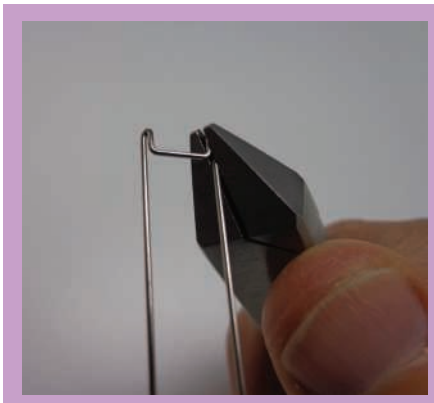

Fig. 5 The arrowheads are bent at an angle of approximately 45°

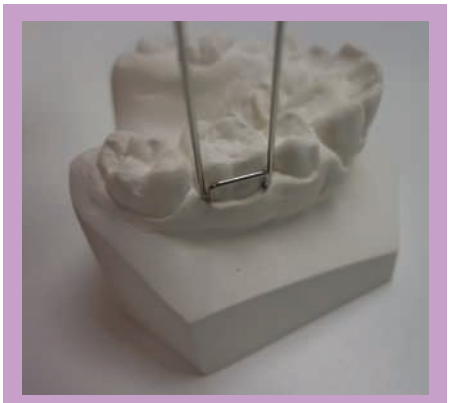

Fig. 6 The arrowheads follow the tooth contour and fit the mesiobuccal and distobuccal undercuts

the tooth is not fully erupted, these undercuts will lie just below the gingival margin and the plaster representing the gingival tissue is trimmed to expose the undercuts. The sub-gingival morphology is carefully anticipated and reproduced when trimming the model. When in the mouth, the clasp will displace this tissue slightly to engage the undercuts. Conversely, if the tooth is fully erupted the arrowheads may not need to reach the gingival margin. In cases of gingival recession or over eruption it is important not to use the full depth of available undercut; if the arrowheads are positioned too far gingivally, too much undercut will be engaged and this will make it difficult or impossible to fit and remove the appliance.

Bridge

Construction begins by forming the bridge, the length of which is the distance between the mesiobuccal and distobuccal undercuts. Using a straight piece of 0.7 mm diameter hard stainless steel wire and Adams universal pliers, a right angle is formed and held against the tooth to anticipate the bridge length (Fig. 1). A second right angle bend is made at the point of the second undercut (Fig. 2).

Arrowheads

The arrowheads are approximately half the height of the clinical crown. The first arrowhead is formed by bending the wire at a right angle (Fig. 3). The arrowhead is completed by holding the wire tightly close to the tips of the pliers with the bridge against the beaks and bending the wire through another right angle while using firm pressure on the wire near the first bend. The wire is aimed between the plier tips, not around the tip of the pliers (Fig. 4). This process is repeated for the second arrowhead. The arrowheads are bent at an angle of approximately 45° (Fig. 5) to follow the tooth contour and fit the mesiobuccal and distobuccal undercuts (Fig. 6).

Occlusal region

The wire then crosses the occlusion. The wire is bent at half the height of the arrowhead (Fig. 7) and then away from the bridge to anticipate where the wire will meet the contact point (Fig. 8). The wire should touch the contact point with the arrowheads at 45° to the long axis of the tooth (Fig. 9). A bend is then formed at the contact point (Fig. 10). To minimise impact with the opposing dentition, the wire is kept as close to the teeth as possible whilst avoiding contact with the gingival tissue.

Retentive tags

The retentive tags will anchor the component in the acrylic baseplate. The wire follows the contour of the palatal or lingual mucosa but approximately 1 mm from the tissue to allow for acrylic encapsulation. The tags need to be long enough to be held within the acrylic but also clear of the anticipated baseplate border. To ensure that the wire is held firmly in the acrylic the end of the wire is turned down at a right angle and then cut off close to this bend (Fig. 11). This process is then repeated to complete the clasp (Fig. 12).

Rotated teeth

If a tooth is rotated a clasp is more likely to

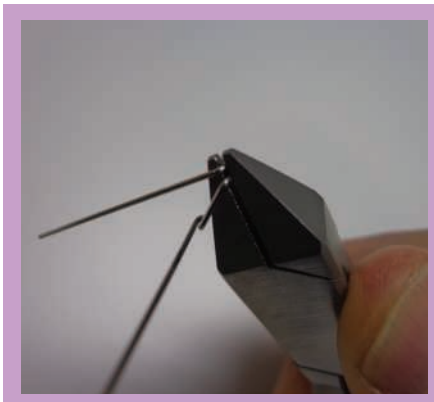

Fig. 7 The arrowhead is held in the tips of the pliers and the wire is bent at half the height of the arrowhead

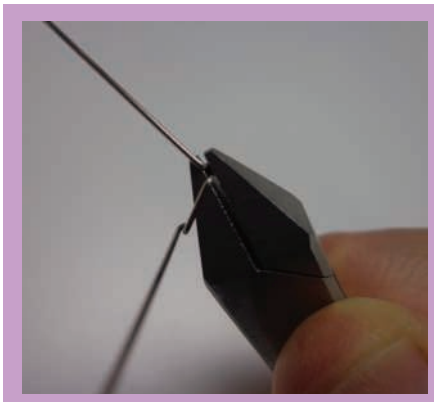

Fig. 8 The wire is bent away from the bridge to anticipate where the wire will meet the contact point

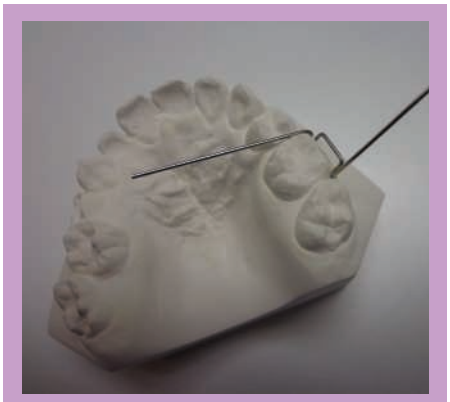

Fig. 9 The wire is adjusted so that it touches the contact point when the arrowheads are at 45° to the long axis of the tooth

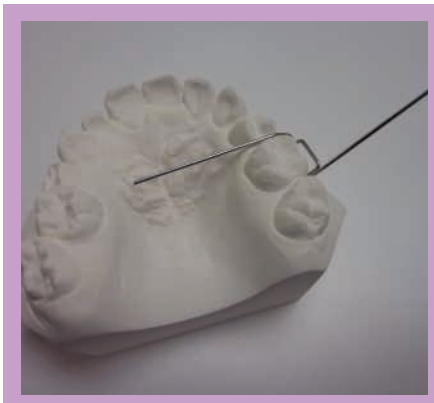

Fig. 10 A bend is formed at the contact point to cross the occlusion

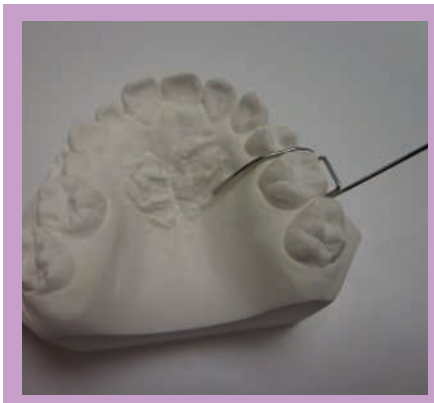

Fig. 11 The retentive tags follows the contour of the palatal or lingual mucosa but approximately 1 mm from the tissue to allow for acrylic encapsulation

Fig. 12 The completed Adams clasp

'65 YEARS AFTER ITS INTRODUCTION ADAMS' MODIFIED ARROWHEAD CLASP REMAINS A RELIABLE AND VERSATILE MEANS OF RETENTION…'

function better if the bridge is aligned with the arch rather than matching the rotation of the tooth.[11]

ADJUSTMENT

Another benefit of the Adams clasp is the ease with which it can be adjusted. To tighten an appliance that is too loose-fitting the arrowheads are gripped with the Adams pliers and bent slightly inwards; to loosen a clasp the arrowheads are bent slightly outwards.

RELATED COMPONENTS

Adams proposed a range of variations for his clasp.[10]

Single arrowhead Adams clasp

A single arrowhead Adams clasp is used in cases where a last standing molar is partially erupted. An arrowhead is placed in the mesiobuccal undercut and the bridge is modified to encompass the tooth distally due to the absence of a distobuccal undercut.[10]

Auxiliary arrowhead

Appliances commonly use clasps on the first molars and first premolars. When it is not possible to independently clasp a second tooth in the same buccal segment an auxiliary arrowhead may be used.[10] Also called an accessory arrowhead, this component fits the tooth adjacent to the main tooth being clasped and the free tag end is welded and soldered to the bridge of the main clasp (Fig. 13).

Double Adams clasp

While Adams did not commend their use,[11] a clasp can be constructed to fit two adjacent teeth (Fig. 14) and made in 0.8 mm wire.[13] Because this component only engages two undercuts it is unlikely to be as retentive as an Adams clasp in conjunction with an auxiliary arrowhead, although it can be used with another clasp, such as a ball clasp (Fig. 15).

AUXILIARY COMPONENTS

The Adams clasp is a very versatile clasp and the bridge can be used to incorporate or attach various components. An active component, such as a buccal canine retractor, can be soldered to the bridge. A labial bow may be soldered to the bridges of Adams clasps on an orthodontic retainer.

Adams proposed a distal extension that can be incorporated into the clasp to engage elastics for intermaxillary traction. A helix can be

Fig. 13 An Adams clasp with an auxiliary arrowhead

Fig. 14 A double Adams clasp

Fig. 15 A double Adams clasp used in conjunction with a ball clasp

Fig. 16 An Adams clasp with laser-welded extra-oral traction tube

incorporated into the bridge and a J hook can be soldered to the bridge for the same purpose.

Tubes can be soldered to enable the attachment of extra-oral traction headgear to a removable appliance.[11,14] Pre-cut stainless steel wire lengths with laser-welded tubes are also available for this purpose (Fig. 16).

AFTER ADAMS – THE DELTA CLASP

William Clark developed the delta clasp for his twin block appliance, stating that it maintains better retention and necessitates minimal adjustment because it does not open after frequent insertion and removal. The delta clasp retains the basic elements of the Adams clasp but the arrowheads are replaced with triangular loops that resemble the Greek upper case letter delta (Δ), which is where the clasp takes its name. The loops may also be made circular or ovoid in shape. Clark reported that delta clasps have less chance of fracture with 10% of twin blocks made with Adams clasps having at least one breakage against 1% of those made with delta clasps.[25-27] However, the delta clasp has not become widely adopted and the Adams clasp remains the most popular retention component for orthodontic appliances.

CONCLUSION

Many retention components have been proposed for orthodontic appliances but none have had the longevity of the Adams clasp. The increased use of thermoformed retainers and aligners[28-31] has undoubtedly had an impact on the use of removable Hawley type retainers[32] and hence Adams clasps. But 65 years after its introduction, Adams' modified arrowhead clasp remains a reliable and versatile means of retention for a range of removable dental appliances and this is likely to remain the case for the foreseeable future.

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bdjteam2014133

DCP COURSE DIRECTORY 2014

THE NORTH-EAST

Leeds Dental Institute

Graduate Diploma in Dental Hygiene & Dental Therapy

Summary: A 27-month full-time course with 25 places, aiming to train dental care professionals who can work within a team framework to provide safe, effective treatment within the remit of a dental hygienist and therapist. Applications are from 1 September to 31 October for courses starting in the following year.

Details: http://medhealth.leeds.ac.uk/coursefinder/22184/GradDip_Dental_Hygiene_and_Dental_Therapy?from=1212&categoryID=

Telephone: 0113 343 6199

Email: denadmissions@leeds.ac.uk

NEBDN National Certificate in Dental Nursing

Summary: Part-time over 18 months with 25 places available. The theoretical element of the course is taught within the School of Dentistry or at one of Leeds' satellite centres in Halifax, Calderdale or Scarborough. You will be expected to spend half a day per week attending classes. The practical element is delivered in your workplace. Courses are delivered during normal working hours.

Details: http://medhealth.leeds.ac.uk/info/1214/dental_nursing/381/the_national_certificate_for_dental_nurses

City & Guilds Advanced Apprenticeship in Health (Dental Nursing)

Summary: This full-time programme over 18 months with 25 places available aims to provide a structured course of study covering knowledge and competence in the Dental Nursing Occupational Standards as well as the Apprentice Framework. The Framework includes: Level 3 Diploma in Dental Nursing; Level 2 Functional/Key Skills in Maths and English; and Level 3 Award in Employment and Personal Learning Skills in Health. You will be assessed in the clinical environment throughout your training and also work in outreach clinics at Beeston, Bradford or Hull.

Details: http://medhealth.leeds.ac.uk/info/1214/dental_nursing/380/the_advanced_apprenticeship_in_health_dental_nursing

Telephone (dental nursing courses): 0113 343 6884

Email: jane.langley@leedsth.nhs.uk

FDS RCS ENG. Yorkshire Orthodontic Therapy course

Summary: A course to train individuals as orthodontic therapists registered with the GDC. The course comprises a four-week core course at Leeds Dental Institute then eight additional study days and workplace training. For the course starting July 2015, there were 12 places available.

Details: http://www.rcseng.ac.uk/fds/courses/orththerapy

NHS Health Education: Yorkshire and the Humber

Dental CPD courses for the dental team such as:

- Medical emergencies for the dental team
- An update in paediatric restorative procedures for dental therapists
- What's new doc? An update on human disease and its impact on dental treatment
- Hands on contemporary endodontics... bring your own molar!
- Employment law in the dental practice - how to avoid the pitfalls
- Dementia awareness training

Details: http://www.yorksandhumberdeanery.nhs.uk/dentistry/

Email: dental.admin@yh.hee.nhs.uk

Sheffield City College

Dental Nursing Apprenticeship

Summary: As an apprentice, you will be working as a dental nurse in a general dental practice for a minimum 30 hours a week and also attend college one day a fortnight, working towards a City & Guilds Level 3 Diploma in Dental Nursing.

Details: http://www.sheffcol.ac.uk/Courses/List/402-Dental-Nursing-Apprenticeship

Dental Technology Extended Diploma Level 3

Summary: This two-year full-time course, assessed through coursework, leads directly to employment as a dental technician and is the basic qualification required for employment in dental technology and GDC registration.

Details: http://www.sheffcol.ac.uk/Courses/List/886-Dental-Technician-BTEC-Level-3-Extended-Diploma

Telephone: 0114 260 2600

Email: info@sheffcoll.ac.uk

Newcastle University School of Dental Sciences

BSc Honours Oral and Dental Health Sciences

Summary: If you want to work as a dental hygienist therapist, this is the degree for you. This degree meets the standards required for GDC accreditation. As it is a new degree, the GDC will be assessing the programme as it progresses. Any student registered on this degree may be eligible to apply to transfer to the first year of the BDS Dental Surgery degree at the end of the year.

Details: http://www.ncl.ac.uk/undergraduate/degrees/a207/courseoverview/

Telephone: 0191 208 3333

Teesside University

BSc (Hons) Dental Hygiene and Dental Therapy

Summary: This dual qualification is regarded as the emerging future of dental care, now incorporating direct access, with a holistic approach to treating and preventing periodontal disease and dental caries. The three-year full-time course is designed to ensure you meet the standards and skills necessary to become registered by the GDC nd hold the title of dental hygienist and dental therapist.

Details: http://www.tees.ac.uk/prospectus/ug/UG_course.cfm?courseid=593&fos=9&fossub=25#coursecontent

Cert HE Dental Nurse Practice

Summary: This Level 4 Certificate in Higher Education is aimed at those wishing to gain an academic qualification while providing support to the dental team and reassurance to patients at Teesside's student dental facility and on dental practice placement.

Details: http://www.tees.ac.uk/prospectus/ug/UG_course.cfm?courseid=592&fos=9&fossub=25#coursecontent

Email: sohscadmissions@tees.ac.uk

Telephone: 01642 384110

If you would like your course or education provider to be included in *BDJ Team*, please send the details to bdjteam@nature.com. The January 2015 *BDJ Team* will focus on the south-east.

bdjteam2014134

Conference 2015: Building your core strength

What should you do if a patient goes into anaphylactic shock? What measures should you take to keep your equipment sterile? How would you deal with a patient complaint? What about making sure not to miss the early signs of oral cancer? The answer to all these questions will be covered in the core CPD sessions at next year's British Dental Conference and Exhibition.

A total of up to 15 hours' verifiable CPD (core and elective) can be achieved by attending the event. Your attendance at each session will be registered electronically using your delegate badge and you will be able to download your CPD certificate after the event.

Sessions marked as core CPD in next year's programme will cover topics that the GDC highly recommends all dental professions cover as part of their minimum verifiable CPD requirement. All the topics are covered in depth and you have the chance to gain different perspectives from a variety of experts.

LEGAL AND ETHICAL ISSUES

From understanding consent to knowing what to put in a patient's records, these sessions have got it covered.

Thursday 7 May 2015

The only way is ethics - a comprehensive update on consent, equality, diversity and ethics

Speaker:

Thomas O'Connor, GDP, Cambridge; Quality Improvement Fellow, Health Education East of England and Honorary Speciality Registrar Cambridge University Teaching Hospitals

Friday 8 May 2015

Hitting the right notes

Speaker:

Andy Hadden, Dento-legal Adviser and Chief Fellowship Assessor, FGDP

Saturday 9 May 2015

How good is your record keeping? How to protect yourself and your practice

Speaker:

Richard Birkin, National Director, BDA Wales

The GDC fitness to practise process – does it work?

Speakers:

Richard Hayward Specialist in Oral Surgery, Derbyshire and Stephen Henderson, Senior Dento-legal Advisor, Dental Protection

COMPLAINTS HANDLING

Learn the benefits of positive patient communication, and how to effectively handle complaints and minimise escalation.

Thursday 7 May 2015

Learn to love complaints

Speaker:

Janine Brooks MBE, Associate Postgraduate Dental Dean, Thames Valley and Wessex, Health Education England and Lead Clinical Tutor, Law and Ethics Unit, Bristol University BUOLD programme

Friday 8 May 2015

Handling patient complaints successfully

Speaker:

Heather Dallas, Managing Director, Dallas Development

Book your place before Monday 9 February 2015 to secure the early bird price!

For more information and to register, visit www.bda.org/conference

DISINFECTION AND DECONTAMINATION

The GDC recommends that you do at least five hours' CPD in this area in every five year cycle to help protect you and your patients.

Thursday 7 May 2015

Infection control essentials

Speaker: **Edward Sinclair**, Practice Management Consultant (Health and Safety), British Dental Association

Saturday 9 May 2015

Cross infection control/ decontamination

Speaker: **Paul Jenkins**, Decontamination Manager, North Bristol NHS Trust

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RADIOGRAPHY AND RADIATION PROTECTION

This is another area which the GDC recommends you cover at least five hours in every CPD cycle.

Thursday 7 May 2015

To expose or not to expose, that is the question. The role of the IR(ME)R practitioner in dose reduction

Speaker:

Jane Luker, Senior Clinical Lecturer, Oral and Dental Sciences, University of Bristol and Dental Postgraduate Dean for Health Education South West

Friday 8 May 2015

Developments in dental radiology for the practitioner

Speaker:

Nicholas Drage, Consultant in Dental and Maxillofacial Radiology, University Dental Hospital, Cardiff

Radiation doses in dental radiography: factors affecting dose and dose reduction

Speaker:

Paul Nixon, Consultant in Maxillofacial Radiology, Liverpool Dental Hospital

MEDICAL EMERGENCIES

The GDC recommends a minimum of ten hours verifiable CPD each five year cycle should cover medical emergencies, with at least two hours each year. You will have no problem gaining this in Manchester with a range of sessions in the Conference and Exhibition Hall programme covering a range of emergencies you might encounter.

Thursday 7 May 2015

The management of anaphylaxis, asthma, angina and hypoglycaemia in general dental practice

Speaker:

Raj Majithia, GDP, London and Associate Dean, London Dental Education and Training

Medical emergencies AND Managing emergencies in the dental practice

Speakers:

Kathryn Taylor and Julie Burke, Specialists and Lecturers in Oral Surgery, Leeds Dental Institute

Friday 8 May 2015

Preventing and managing medical emergencies

Speaker:

Peter Whiteford, Resuscitation Adviser, Medical Emergency Training

Medical emergencies – angina and heart attack with Automated External Defibrillation (AED)

Speaker: **Peter Whiteford**, Director, Medical Emergency Training

Saturday 9 May 2015

Medical emergencies in the dental surgery

Speaker: **Abbas Zaidi**, Cardiology Specialist Registrar, Wales Deanery

Medical emergencies - anaphylaxis and intramuscular injection techniques

Speaker: **Peter Whiteford**, Director, Medical Emergency Training

ORAL CANCER

Early detection of oral cancer can save lives. Some of these sessions will help you know what to look for; others will focus on current research and discoveries to keep you informed.

Thursday 7 May 2015

Oral cancer: prevention and early detection (Training Essentials theatre)

Speaker:

Mike Pemberton, Consultant in Oral Medicine and Clinical Head of Division, University Dental Hospital of Manchester

Friday 8 May 2015

Well, why worry? ...You don't get pregnant with oral sex!

Speaker:

Val McMunn, Lecturer in Contraception and Sexual Health, City University London and Independent Nurse Prescriber

The changing face of oral cancer: from biology to the bedside

Speaker:

Gareth Thomas, Professor of Experimental Pathology, University of Southampton and Consultant in Head and Neck Pathology, University Hospital Southampton NHS Foundation Trust

Saturday 9 May 2015

Early detection of oral cancer

Speaker:

Simon Whitley, Consultant in Oral and Maxillofacial Surgery, Barts and the Royal London Hospitals; and Lead Clinician and Chair, Head and Neck Multidisciplinary Team, North East London NHS

'GAIN DIFFERENT PERSPECTIVES FROM A VARIETY OF EXPERTS'

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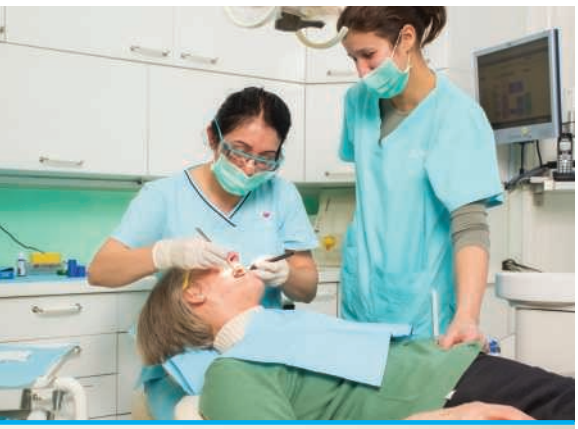
Training Essentials

BDA
British Dental Association

Courses for the whole dental team

Meeting all your verifiable and CORE CPD requirements



Online marketing and social networking

LONDON – 23/01/2015 – 4 ½ hours verifiable CPD

This highly interactive course delivered by Mark Oborn, one of the UK's top dental marketing professionals, will show you how to use Facebook, Twitter, email and web search to their full potential to grow and develop your business.

An introduction to dental hypnosis for the whole dental team

LONDON – 30/01/2015 – 5 ¾ hours verifiable CPD

Learn how using hypnosis in your practice can provide significant benefits to both patient and clinician. This one-day practical course will help you learn how to induce trance states using simple techniques to help patients during treatment and help calm highly aroused and phobic patients.

Law, ethics and record keeping CORE

LONDON – 05/02/2015 – 5 ½ hours verifiable CPD

Get up to date with the current legal and ethical issues facing dentistry and where were are now with CQC. Learn how to keep quality records in order to protect your practice and the team and support the welfare of your patients.

One day courses:

BDA members	£215 per person
Non members	£315 per person
DCPs	£135 per person

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What do we tell patients about e-cigarettes?

By **D. J. Worsley**,[1] **K. Jones**[2] and **Z. Marshman**[3]

Vaporising nicotine

E-cigarettes (also known as electronic cigarettes, electronic vaping devices or electronic nicotine delivery systems [ENDS]) are battery operated devices with the function to vaporise nicotine. This creates a smoke like effect that can then be inhaled and exhaled, replicating smoking behaviour without the use of tobacco.[1]

First developed in China in 2003 e-cigarettes are now retailing worldwide. This is a fast growing market likened to a 'gold rush',[2] with dedicated e-cigarette companies being joined by the leading tobacco companies, some of which are launching their own products or buying e-cigarette companies.[3,4]

The UK market is growing, with an estimated 1.3 million e-cigarettes users in 2013,[5] and is worth approximately £100 million per year.[6] With more healthcare workers and patients asking about e-cigarettes, the aim of this article is to provide an overview of e-cigarettes and the implications of their use for the dental team.

What are e-cigarettes?

E-cigarettes comprise three main components: a battery, a cartridge and an atomiser, which is an electronic heating element for vaporisation of the liquid. The basic types of e-cigarettes include the disposable e-cigarette, a rechargeable e-cigarette with replaceable cartridges prefilled with liquid, and a rechargeable e-cigarette with a liquid refillable cartridge/tank (Fig. 1).

The cartridge contains a liquid known as e-liquid, e-juice, or smoke-juice. The ingredients may contain nicotine, flavourings, water, citric acid as well as either propylene glycol and/or glycerol. The nicotine concentration depends on the brand and the product, ranging from 0 mg/ml to 24 mg/ml and may be labelled as nicotine-free, or referred to as mild/low, regular/medium or strong/high. In addition e-liquids with 36 mg/ml to 50 mg/ml of nicotine are available.

A wide range of natural and/or artificial flavours may be incorporated into the nicotine or nicotine-free versions, for example, traditional tobacco flavours, fruit, chocolate and various novelty flavours such as candy floss and margarita.

The replaceable cartridges for e-cigarettes are preloaded with e-liquid, and bottles of 10, 30 or 50 ml of e-liquid are available for the liquid refillable e-cigarettes.

Depending on the e-cigarette device, activation of vaporisation of the e-liquid may occur when 'drawing' on the device, or by use of a switch, which activates the atomiser to vaporise liquid that can then be drawn into the lungs. This process may be termed either 'vaping' or 'smoking'. In this article the use of an e-cigarette will be termed vaping, and the use of a tobacco cigarette termed smoking.

In contrast to a tobacco cigarette, which may provide between 10 to 20 puffs per cigarette and has a natural endpoint, the number of puffs from an e-cigarette depends

[1,3]School of Clinical Dentistry, Claremont Crescent, Sheffield, S10 2TA; [2]Consultant in Dental Public Health, Public Health England, South Yorkshire Team, Unit C, Meadow Court, Hayland Street, Sheffield, S9 1BY

Fig. 1 Three types of e-cigarettes: disposable e-cigarette; rechargeable cartridge e-cigarette; and rechargeable liquid refillable e-cigarette, photographed by PSP Worsley

on brand, product and the way it is used. The range for disposable and replaceable cartridges is reported to be from 150 puffs to 300 puffs, where 300 puffs is equivalent to 40 cigarettes[7] and a 10 ml bottle of e-liquid used in refillable e-cigarettes is equivalent to 200 cigarettes.[8] E-cigarettes are available to buy on the Internet, at dedicated e-cigarette shops, in the supermarkets and other retail shops, and at street vendors.

Who uses e-cigarettes and why?

E-cigarettes are relatively new on the UK market. Their use is mainly among tobacco smokers, which in England is 19.6% of the population.[9]

The results of the Smoking Toolkit Study (STS) on e-cigarettes in England showed that the 'current use' (people who are using e-cigarettes at the time of the survey) has steadily increased among smokers, rising from 2% in 2011 to 15% in 2013.[9] The Action on Smoking and Health (ASH) survey on e-cigarettes found that current use among ex-smokers had increased from 1% in 2011 to 3% in 2012; among adults who had never smoked current users were 0%; current use among children aged 11 to 18 was rare and there was little use reported among children who had or who currently smoked.[10]

In the ASH survey 24% of smokers and 5% of ex-smokers had 'tried' e-cigarettes (people who had tried but no longer used e-cigarettes). Among adults who had never smoked 1% had tried them and among children who had never smoked 1% had tried them.[10]

While the use of electronic cigarettes in children is low in the UK, the results of surveys from the United States have revealed an increasing trend in the use of e-cigarettes among children.[11]

E-cigarettes are claimed to be cheaper than tobacco cigarettes. A price comparison by one company estimated the cost of using e-cigarettes to be 80% cheaper than smoking tobacco cigarettes.[12] The estimated cost for an e-cigarette, equivalent to 20 tobacco cigarettes, is less than £2[13] compared to the average cost of about £7 for 20 tobacco cigarettes; the 20% tax on e-cigarettes is lower than the 80% tax on tobacco cigarettes.[14] Users of e-cigarettes give a range of reasons for vaping, some of which are listed in Table 1.

Table 1 Reasons given for use of e-cigarettes[1,9,10,15]

For recreational purposes
As preferable to smoking tobacco cigarettes
As an alternative to tobacco cigarettes where smoking is prohibited
To reduce exposure of others to second hand smoke
As a cheaper alternative to tobacco
As a harm reduction tool to help reduce the quantity of tobacco being smoked
As a smoke cessation tool to help reduce and quit tobacco

What is the current legislation and regulation of e-cigarettes in the UK?

In the UK, e-cigarettes are regulated as general consumer products and have to meet the General Products Safety Regulations 2005, the Chemical (Hazard Information and Packaging for Supply) regulations 2009, and are monitored by Trading Standards.[1] They are not subject to the stricter medicines regulations unless they claim or imply that they can assist in giving up smoking[16] and at present no e-cigarettes are regulated as medical products.

The advertising of e-cigarettes is becoming reminiscent of the tobacco cigarette advertising of the past: glamorous, desirable, sexy, and fashionable, with marketing being directed at both smokers and non-smokers.[2] Adverts for e-cigarettes are subject to few restrictions at present. The e-cigarette may not be shown in television advertisements but can be shown on posters, on the Internet etc. Advertisements for e-cigarettes cannot claim or imply that they are a smoking cessation tool, a harm reduction tool, harmless or risk-free unless there is evidence to support the claims.[17] Despite these restrictions, a recent report found that e-cigarettes were being promoted as 'a healthier and safer source of nicotine' and 'good for cutting down, quitting or switching from traditional cigarettes'.[2] In 2014 the Committee of Advertising Practice (CAP) launched a public consultation to develop clear advertising rules for the e-cigarette industry.[18]

E-cigarettes are not subject to tobacco control measures and therefore they may be vaped in public spaces unless organisations have imposed restrictions on their use.

In March 2014 an Act was passed allowing for regulations to prohibit the sale of nicotine products, including e-cigarettes, to under 18-year-olds in England.[19] The Welsh Government are considering a similar ban.[20] Some e-cigarette manufacturers and retailers have put in place self-imposed sales restrictions to those aged 18 years and older.

What is the proposed legislation and regulation of e-cigarettes in the UK?

In June 2013, following consultations and research into e-cigarettes by the Medicine and Healthcare Regulatory Agency (MHRA), an announcement was made that the UK Government had 'decided that the MHRA will regulate all nicotine containing products (NCPs) as medicines so that people using these products have the confidence that they are safe, are of the right quality and work'.[21] Public Health England is in favour of the regulation of all NCPs, including e-cigarettes as medicines.[22] These pronouncements concurred with the proposal from the European Commission to the European Parliament that in the revised version of the 2001 Tobacco Products Directive (TPD) e-cigarettes should be regulated as medicines. However, in February 2014 the European Parliament approved a revised EU Tobacco Products Directive (TPD).[24] The TPD makes a distinction between e-cigarettes that make medicinal claims such as aiding smoking cessation, and e-cigarettes that don't, referred to as 'consumer cigarettes' in the TPD. E-cigarettes that make medicinal claims will be regulated under medicines regulation and 'consumer e-cigarettes' will need to meet the TPD regulations listed below:

- Nicotine containing liquids placed on the market should not exceed 20 mg/ml
- E-cigarettes placed on the market should deliver a consistent nicotine dose
- E-cigarette products must be child and tamperproof
- E-cigarettes must meet certain safety and quality requirements
- E-cigarette packaging must include health warnings, information on addictiveness and toxicity and a list of all the ingredients.

In addition there is to be monitoring of the market for evidence of e-cigarettes leading to nicotine addiction or acting as a gateway to tobacco consumption. It will be up to each Member State to decide on age limits, regulation of flavouring and rules on 'vape' free environments.[24,25] The decision by the European Parliament not to regulate all e-cigarettes as medical products 'has raised some uncertainty about the MHRA licensing plans'.[2] The MHRA will continue to advise e-cigarette companies to licence their products.[23]

What evidence is there about the safety, quality and efficacy of e-cigarettes?

There is increasing research into e-cigarettes but at present the evidence base for their safety, quality and efficacy is not extensive. In 2013, the World Health Organisation (WHO)[26] stated: 'the safety of ENDS has not been scientifically demonstrated' and 'the potential risks they pose for the health of users remain undetermined'. This concurs with the findings of the MHRA, which recently completed market and scientific research of NCPs including e-cigarettes. They concluded that, 'although there is no evidence to suggest that using electronic cigarettes is more harmful than smoking tobacco cigarettes there remains a paucity of scientific evidence on the long-term effects'.[16]

In addition to the undetermined long-term safety concerns of the effect of e-cigarettes on health, variations have been found in the quality of the e-cigarette products in relation to the ingredients of the e-liquids, which could vary in nicotine concentration within the same batch; could contain additional additives and contaminants; and could vary in the effectiveness of nicotine delivery from devices.[16] Concern was raised at a recent European Commission[27] meeting by two e-cigarette associations that 'there were still quality and safety issues with some products and that not all producers of electronic cigarettes were 'responsible' manufacturers'.

Although the safety of e-liquids for both short-term and long-term health requires further research, ASH[5] has stated that 'they are likely to be a safer alternative to smoking'. In a study of 20 tobacco cigarette smokers who substituted tobacco cigarettes with e-cigarettes for two weeks all the tobacco smoke toxins tested for were substantially reduced.[28] A study on vapour produced from 12 brands of e-cigarettes, which analysed toxicants normally found in tobacco cigarette smoke, found that the toxicants (some of which were carcinogenic) examined for were present, but at a ratio of 9 to 450 times less than in tobacco smoke.[29] Another study found that exhaled vapour produced from three models of e-cigarettes contained nicotine and that people in close proximity would be exposed to the nicotine but it would be at levels ten times lower than nicotine from tobacco cigarette smoke.[30]

While the use of 'e-cigarettes may be useful in reducing the harm of cigarette smoking in those unable to quit'[28] it 'may involuntarily expose non-users to nicotine'.[30]

Nicotine is an addictive substance and can be toxic, however, studies on NRT have not found nicotine to be implicated in cardiovascular disease[31] or in cancer.[32] While tobacco is known to be harmful to periodontal health,[33] nicotine itself may be implicated in adverse effects on the periodontium through various mechanisms such as peripheral vasoconstriction.[34]

The efficacy of e-cigarettes in smoking cessation

Quitting smoking by stopping abruptly or by gradual reduction with or without aids such as nicotine replacement therapy (NRT) and/or support[35] has, until the 2013 National Institute for Care and Health Excellence (NICE) guidance on tobacco harm reduction,[36] been the main approach to reducing tobacco consumption.

The STS[9] showed that the percentage of smokers attempting to stop smoking in 2013 ranged from 29-36% and smokers trying to quit who used support in the form of smoking cessation services, over the counter NRT or medical prescriptions were increasingly using e-cigarettes to support their quit attempt. The efficacy of e-cigarettes as a smoking cessation tool has yet to be scientifically demonstrated[26] but anecdotal findings from newspaper articles[15] and comments from online newspaper threads indicate that some users are reporting that use of e-cigarettes has enabled them to quit smoking tobacco.

A recent randomised control study by Bullen *et al.*[37] investigating quit rates using e-cigarettes and nicotine patches over a six month period found that there was no statistically significant difference between the quit rate in the group using e-cigarettes delivering nicotine (quit rate 7.3%), compared with the group using nicotine patches (quit rate 5.8%). An additional finding from the study was that, at six months, 57% of those in the e-cigarette delivering nicotine group had reduced their tobacco consumption by half or more.

The efficacy of e-cigarettes in harm reduction

Harm reduction may be defined as 'the long-term use by smokers of less harmful non-tobacco products, with or without a quit attempt'.[38] The recent NICE guidance on *Tobacco harm reduction approaches to smoking*[36] advises that a tobacco harm reduction approach may be helpful for people who:

- May not be able to stop smoking (or do not want to stop) in one step
- May want to stop smoking, without necessarily giving up nicotine
- May not be ready to stop smoking, but want to reduce the amount they smoke.

A broad range of harm reduction strategies are advised, including the use of NRTs, which are licensed nicotine products. E-cigarettes are not licenced as NRTs and because at present their safety, quality and efficacy cannot be assured, they are not recommended. Products on the market that are regulated as medicines, and mimic the hand to mouth action of smoking, are inhalators, for example Nicorette, NicAssist. The inhalators do not have an atomiser and the liquid nicotine concentration is 15 mg/ml.

Surveys are showing that, despite e-cigarettes not being recommended as a harm reduction approach, there is an increasing use of e-cigarettes by smokers to help them reduce the amount of tobacco they smoke,[10] with 10% of smokers now using them as a harm reduction measure and this has overtaken NRTs.[9]

Evidence of e-cigarettes as a 'gateway' to tobacco use

There are concerns that the use of e-cigarettes containing nicotine, a highly addictive psychoactive drug, may act as a 'gateway' to the use of tobacco products by those who have never smoked.[39,40] Some argue that it is preferable for those who decide they may wish to smoke to choose e-cigarettes rather than tobacco

'THERE IS CONCERN THAT THE USE OF E-CIGS CONTAINING NICOTINE MAY ACT AS A "GATEWAY" TO TOBACCO PRODUCTS…'

cigarettes.[41] At present the surveys in the UK have shown that there is little uptake of e-cigarettes by children or those who have never smoked,[10] but the de Andrade *et al.*[2] report found marketing strategies targeted two groups: the committed smoker, who may think about quitting; and the younger social smoker and non-smoker. It may be too early in this emerging market to find evidence of e-cigarettes as a 'gateway' to smoking.

Evidence of vaping renormalising smoking

Smoking was a social norm in the UK in the 1950s and 1960s, advertised widely and allowed in public places, on transport and often in the workplace. The comprehensive range of tobacco control measures introduced gradually over recent years has meant that many of those in their early twenties today have grown up without the same exposure to smoking behaviours as experienced by their parents/carers or grandparents. There is a concern that vaping, which mimics smoking behaviour and is being widely advertised and allowed anywhere (unless banned) may renormalise smoking.[38,42] Distinguishing between vaping and smoking may be obvious for some but not for others, for example, children[43] – it may be difficult to police and it may be too early for research to establish if, or how, vaping changes the perceptions of smoking.

WHAT DO WE TELL PATIENTS? Advice about e-cigarettes for patients

Dental teams already have an important role to play in advising patients to cease tobacco consumption. A recent publication of the second edition of *Smokefree and smiling*[44] reiterated the advice to be given to patients to aid cessation of tobacco use. At the moment e-cigarette use as a smoking cessation tool is not supported.[22] However, patients may be using and asking the dental team about e-cigarettes, so what do we tell them? Based on the literature reviewed above, current advice about e-cigarettes for patients is summarised in Table 2. However, dentists and dental care professionals need to recognise the potential for changes to this advice as regulations[24] change and findings from research on the safety and effectiveness of e-cigarettes are published.

Table 2 Advice about e-cigarettes for patients (April 2014)

The long term safety of e-cigarettes is not yet established[16,25,26]
E-cigarettes are likely to be less harmful than tobacco cigarettes[1,5]
The effectiveness of e-cigarettes as either a smoking cessation tool or a harm reduction tool is not yet established[25,26]
At present no e-cigarettes are licensed as a medicine16,44 and patients are recommended to use licensed NRT products to quit or reduce tobacco consumption[1,43,45]
Advice to patients who are unable or unwilling to use licensed NRT products is that although the safety of e-cigarettes cannot be assured they are likely to be a lower risk option than continuing to smoke[1]
Advise patients that there is the potential for advice about e-cigarettes to change as findings from research about the safety and effectiveness of e-cigarettes is published
Advise patients that referral to the Stop Smoking Services is an option to consider

Permission or prohibition of e-cigarette use on your premises

With the lack of regulation and legislation regarding where e-cigarettes can be vaped, organisations such as train operators, chains of pubs, a number of schools and work organisations have implemented their own regulations.

ASH[43] has produced a comprehensive guidance sheet with five questions to ask (Table 3) before deciding whether to permit or prohibit e-cigarette use on premises.

Knowledge of current legislation and regulations as well as the safety of e-cigarettes and their potential to renormalise smoking behaviour may help inform decisions on whether to permit or prohibit use of e-cigarettes on your premises.

Table 3 Questions to ask when deciding to permit or prohibit e-cigarette use[35]

What are the issues you are dealing with?
What do you need to control?
Do you have concerns about the possibility of harm from NCPs?
Will restricting or prohibiting the use of NCPs support compliance with smoke-free policies?
Do you want your policy to help improve people's health?

What are the public health arguments for and against e-cigarettes?

Statistics from Cancer Research UK[45] show that tobacco consumption is the 'single greatest cause of preventable illness and early death with an estimated 102,000 people dying in the UK in 2009 from smoking-related-diseases including cancers'. Some argue that e-cigarettes may be a potential revolution to public health[41,46] because there is acceptance that they are likely to be less harmful than tobacco cigarettes,[5] that e-cigarette use is predominantly by former smokers[10] and studies show that their use can reduce tobacco consumption.[37]

While some suggest that is it preferable that adolescents try e-cigarettes rather than tobacco cigarettes,[41] others are concerned that the marketing, combined with the lack of regulations, may lead to widespread use, a re-socialising of smoking,[42] and an undermining of the prevention and cessation services.[1] Whether e-cigarettes are an effective smoking cessation tool and harm reduction tool has yet to be established. Nicotine is highly addictive, and whether vaping of e-cigarettes will perpetuate nicotine use or act as a gateway to smoking is as yet unknown.

CONCLUSION

Further research is needed on the safety, quality and effectiveness of e-cigarettes and also on their efficacy as a smoking cessation and harm reduction tool. With the rapid expansion of this market and the availability of new and changing products, smokers, former smokers and those who have never smoked are already deciding the purpose of e-cigarettes. Delays in regulation and legislation may potentially allow the markets to determine the course of their use. Meanwhile, as health professionals, we need to be able to answer the questions raised by patients about e-cigarettes and keep abreast of this rapidly developing market.

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'AS HEALTH PROFESSIONALS WE NEED TO BE ABLE TO ANSWER THE QUESTIONS RAISED BY PATIENTS ABOUT E-CIGARETTES'

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CPD ARTICLE: DENTAL MATERIALS: The Adams family

1. Although more commonly known as the Adams clasp, which name was used when the component was first reported in 1949?

A. arrowhead clasp
B. Liverpool clasp
C. modified arrowhead clasp
D. universal clasp

2. Which diameter of stainless steel wire is usually used to fabricate an Adams clasp for a permanent first molar?

A. 0.5 mm
B. 0.6 mm
C. 0.7 mm
D. 0.8 mm

3. Which part of the Adams clasp is used to anchor the component in the acrylic baseplate?

A. bridge
B. arrowheads
C. occlusal region
D. retentive tags

4. Which part of the Adams clasp is used to incorporate an additional component, such as an extra-oral traction tube?

A. bridge
B. arrowheads
C. occlusal region
D. retentive tags

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