

B DJ Team

JANUARY 2018

MEDICAL EMERGENCIES:

asthma

January 2018

Highlights

- 09 Medical emergencies: asthma - CPD**
Emma Hammett provides an up to date guide on managing patients who have an asthma attack in the dental practice.
- 13 'It's a privilege to be the incoming BADN President'**
An interview with Hazel Coey about her career in dental nursing and plans for BADN presidency.
- 18 Safeguarding training for your team**
The Child Protection Company provides guidance on the level of safeguarding training your dental team requires.



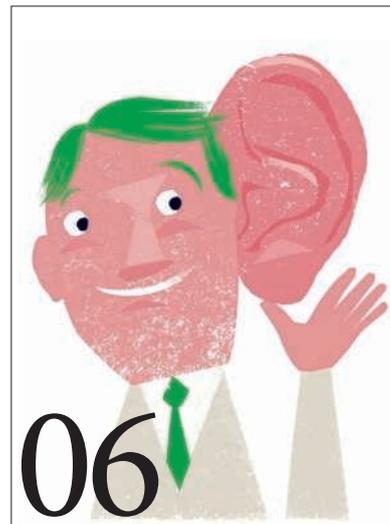
**CORE
CPD:
ONE HOUR**

Regulars

- 03 Editor's letter
05 News
29 Dental products
31 *BDJ Team* verifiable CPD

In this issue

- 07 'You must push boundaries and be adventurous'**
Canadian born *BDJ Team* feature writer, practice manager and pharmacist Priya Sharma tells us how she came into dentistry.
- 15 How practices can facilitate access for the gypsy traveller community**
Discusses the experience of a practice within West Oxfordshire.
- 21 Oral manifestations of systemic disease**
A succinct review of oral mucosal and salivary gland disorders that may arise as a consequence of systemic disease.





Ed's letter

Whenever I interview a dental nurse about their career for *BDJ Team*, their feelings towards dental nursing are always overwhelming positive. New BADN President Hazel Coey, who started out in dental nursing part-time as a young mother in the 1980s, is no exception.



'I would definitely recommend dental nursing as a career!' says Hazel. 'I have so enjoyed my work to date; working with people is at the top - my colleagues are such professional and lovely people. So many of them are close friends now. I have also enjoyed working in the dental surgery, schools, with health visitors, early learning teams, learning disability teams, hospitals, prisons, nursing homes...'

For Hazel, as with many inspirational dental care professionals who have featured in *BDJ Team*, dental nursing has been a stepping stone to a varied, rewarding and ever-changing career. Read about Hazel's career journey in this issue of *BDJ Team*.



Hazel Coey's journey p13

While equally enthusiastic about dental nursing and dental practice management, interviewee Priya Sharma, who also appears in this issue, came to dentistry via a very different route. Priya originally took a university degree in sociology and pharmacy in Canada and worked in community and hospital pharmacy settings, before setting up in dentistry with her husband, a dentist, in the UK. 'I absolutely love what I am doing,' says Priya of her current roles.

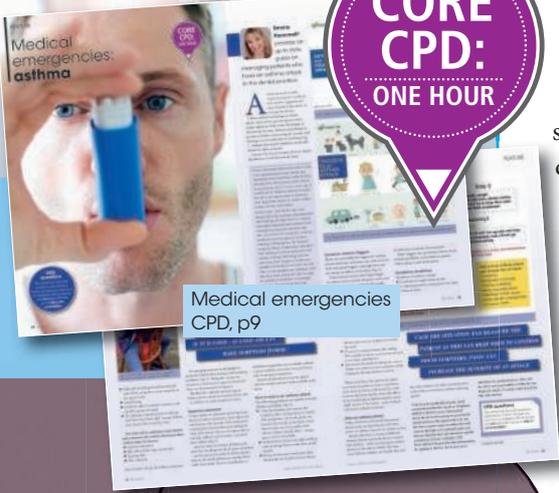
What is your story within dentistry? I would love you to share it with our readers this year as we go forward with another ten jam-packed issues. This month we also look at what training your dental team needs in safeguarding children and adults; a medical emergencies focus on dealing with patients who suffer from asthma (with one free hour of verifiable CPD); research into how dental practices can facilitate access for the gypsy traveller community; and a clinical paper looking at oral manifestations of systemic disease. Happy reading, and Happy New Year!

Kate

Kate Quinlan
Editor
k.quinlan@nature.com

bdjteam20181

CORE CPD:
ONE HOUR



Medical emergencies: asthma

Medical emergencies CPD, p9



Facilitating access p15

Signs of systemic disease, p21

Safeguarding training p18

THE TEAM

Cover
© IAN HOOTON/SPL/Getty Images Plus

Editor-in-Chief
Stephen Hancocks OBE

Editor
Kate Quinlan

Production
Art Editor: Melissa Cassem
Production Editor: Betty Bohane
Digital Editions Production Controller: Natalie Smith

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

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

© **British Dental Association** 2018. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by

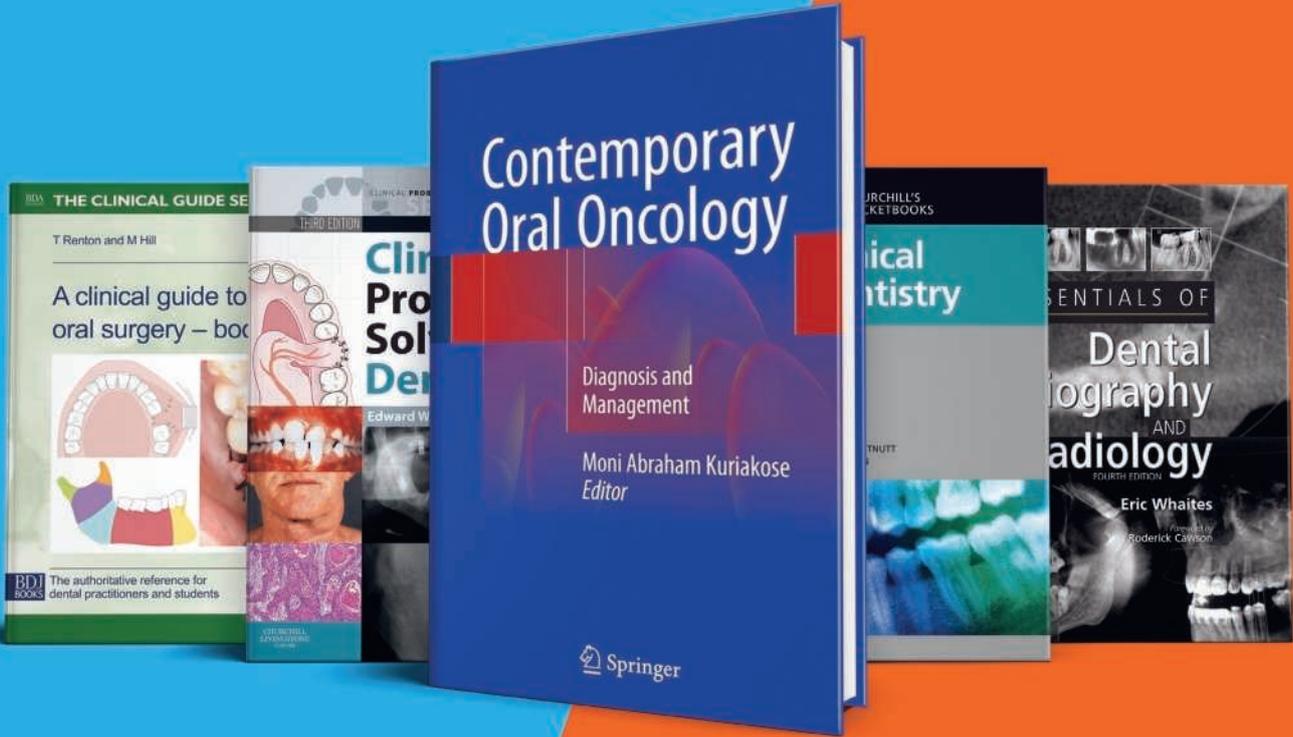
any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the *British Dental Journal*.

The opinions expressed in this publication are those of the authors and not necessarily those of the British Dental Association or the editor. Appearance of an advertisement does not indicate BDA approval of the product or service.

Everything you need, just a click away

BDA

British Dental Association



BDA Members

40% OFF

BDA Student Members

50% OFF



BDA members get free shipping on all orders

The BDA is owned and run by its members.
We are a not-for-profit organisation – all our income is reinvested for the benefit of the profession.

shop.bda.org



Sharon Blake (left) and Nicole Thomas

DENTAL HYGIENIST PUBLISHES RESEARCH ON MAKING DENTAL VISITS LESS STRESSFUL FOR CHILDREN WITH AUTISM

Inspired by her own experience as a mum to a five-year-old son with autism, a dental hygienist has published new research hoping to make dental examinations less stressful for autistic children.¹

Giving children the power of choice – even in something as simple as the colour of mouthwash they use after their dental examination – could make a world of difference to a child with autism, according to Nicole Thomas, from the Plymouth University Peninsula Schools of Medicine and Dentistry.

Nicole interviewed 17 parents about their experiences of taking their children for routine dental examinations – working alongside researchers at the Peninsula Cerebra Research Unit (PenCRU) at the University of Exeter Medical School, supported by the National Institute for Health Research Collaboration for Applied Health Research and Care South West Peninsula (NIHR PenCLAHRC). She was also advised by members of the PenCRU Family Faculty – a group of parents of disabled children.

Emerging from the study were five key areas that improved the chances of a dental visit being successful, with clear communication between parents and professionals central to ensuring the children have as good an experience as possible.

Nicole said: ‘Going to the dentist can be challenging for any child, but I know from experience that taking a child with autism for a routine check-up can be really stressful for everyone involved, from the huge amount of preparation prior to and the impact afterwards if it is unsuccessful. So I, with the outstanding support of my mentor, Sharon Blake from the University of Exeter, was surprised at the small changes required that could make a really significant difference.’

All participating parents said their children were hypersensitive to the feelings and negative body language of those around them which made dental examinations challenging. Being flexible to make minor environmental adjustments and giving children choices – such as mouthwash colour or brightness of the lights – was found to be effective in helping them feel less stressed,

and she added that the behaviour of the whole dental team, from receptionists through to practitioners, was vital in terms of influence.

The research showed that parents’ confidence when visiting the dentist was also a key factor.

Nicole added: ‘Some parents respect the dentist’s viewpoint so much that they don’t have the confidence to ask about what to expect and request changes to surroundings, but this study shows that clear and open communication on both sides creates a collaborative partnership that works in the best interest of all.’

In addition, having clear referral pathways to specialist dental services to avoid any delay and distress for families whose children are still not able to cope with conventional dental setting was highlighted as vitally important.

Sharon Blake, Associate Research Fellow at the University of Exeter, said: ‘It has been my privilege to support Nicole with this important research. She worked tirelessly around her day job as a dental hygienist and family commitments. I am absolutely delighted that following this research training, Nicole is now studying for a PhD and we were able to contribute to understanding the challenges and best practice in respect of accessing dental services for children with autism.’

Nicole hopes the findings will empower parents to feel confident to advocate for their child’s individual needs, as well as help dental professionals, like herself, understand the small changes they could incorporate to make a big difference.

1. Thomas N, Blake S, Morris C, Moles DR. Autism and primary care dentistry: parents’ experiences of taking children with autism or working diagnosis of autism for dental examinations. *Int J Paediatr Dent* 2017; doi: 10.1111/ipd.12345 [Epub ahead of print].

Free resources on oral health during pregnancy

The European Federation of Periodontology (EFP) has launched a campaign to highlight the importance of oral health for pregnant women and for its possible impact on delivery.

Scientific reports, practical guidelines, infographics and other materials are freely available for dental practices,

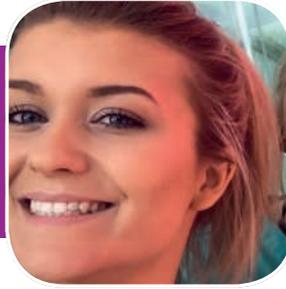
gynaecologists, midwives, physicians, pharmacists, health organisations, and the general public.

A special website has been created to help all 30 EFP-affiliated national societies of periodontology to raise awareness of pregnancy gingivitis and its implications among dentistry professionals, other

health professionals, and women: <http://www.efp.org/publications/projects/oralhealthandpregnancy/>.



DENTAL HYGIENIST AND THERAPIST RECEIVES FIRST NATIONAL AWARD



A University of Portsmouth dental hygienist and therapist has won the first national Student of the Year award for excelling in her studies.

Madelaine Pearce, 21, graduated in 2017 and now works as a dental hygienist and therapist at the Market Place Dental Practice in Devizes, her home town. She was awarded the British Society of Dental Hygiene and Therapy (BSDHT) and Henry Schein first national award.

For many years, BSDHT has sponsored a prize for all UK hygiene and therapy schools to be awarded to the student who had excelled in their studies, but this is the first time the winners from each school were eligible for the national award.

Madelaine was chosen for demonstrating exceptionally high standards throughout her studies and for going above and beyond in furthering the profile of the profession.

Madelaine said: 'I was very surprised and honoured to receive the award and cannot express my gratitude enough for the support

from the University's Dental Academy over the last three years. My research that contributed to the award was a literature review on whether humans are capable of continuous tooth regeneration.'

Dr Jo-Anne Taylor, dentist and clinical teaching fellow at the University of Portsmouth's Dental Academy, nominated Madelaine and said: 'We are enormously proud of all our graduates who are ambassadors not only for the University of Portsmouth but for the profession. Madelaine was selected as our student of the year for most outstanding undergraduate research project, greatest increase in overall assessment scores between level five and six, and for contribution to patient care during her studies.'

Madelaine was presented with her award at the BSDHT Oral Health Conference in Harrogate in November. The prize included her travel and accommodation expenses to attend the conference and a trophy.

'TRULY INSPIRATIONAL' PATRICIA WINS DR LEATHERMAN AWARD



As part of the Oral Health Conference 2017, held in Harrogate on 3-4 November, the British Society of Dental Hygiene and Therapy (BSDHT) was delighted to announce the winner of this year's Dr Leatherman Award as Patricia Macpherson (pictured, left, receiving her award from BSDHT President Helen Minnery).

Designed in memory of Dr Gerald Leatherman to reflect true dedication, professionalism and determination for the good of the profession, the Award is held in high regard among the profession (<http://www.bsdht.org.uk/about-us/the-gerald-leatherman-award>).

BSDHT President Helen Minnery described Patricia as 'a truly inspirational woman' who has been committed to the BSDHT for over 40 years, 'remaining steadfast in her support of colleagues'.

While humbly accepting her award, Patricia said: 'The BSDHT is the body that represents you, nationally... Without the society, I don't think I would have achieved what I have... I am truly touched and very grateful.'



Heard in the dental practice

We put a call out on social media for the most amusing things dental professionals had overheard in the practice.

'A little boy was sitting in our waiting room watching adverts on the TV and one came on about gingivitis. He turned to his red-head brother and said "That's what you've got gingerrrr virus". I almost fell off my chair laughing.'

'A patient's daughter who was four-years-old told her Dad to "Man up princess" when he was having a check-up.'

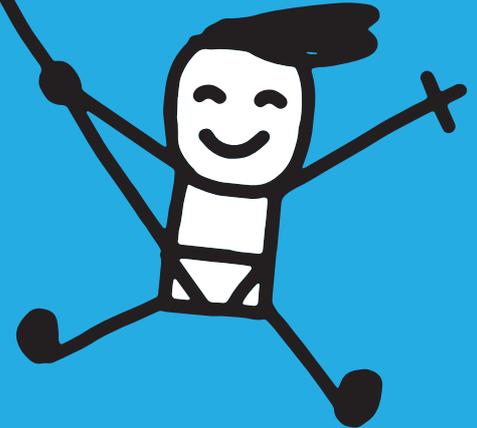
'In 1966 I was a resident in dentistry at the DVA veteran's hospital in Vancouver, Canada. A patient with very limited English had been receiving treatment and on the way out the receptionist said to him "Are you ok?" and then asked him "Which doctor did you see?" He replied gravely, "Oh yes witch doctor!"'

'Me to child going numb: "What did you do at school today?"
Patient: "Writing"
Me: "What did you write about?"
Patient: "I don't know, I can't read yet."'

'I was treating an elderly gentleman. I had to go through the options with him of which there were three. He then asks me "How often do you do number 1s?" I of course kept a straight face, especially because his daughter was sitting next to him, but when he asked "and do you regularly do number 2s?" At that point I had to leave the room.'

Have you overheard something that tickled your funny bone at work? Email bdjteam@nature.com.

'You must push boundaries and be adventurous'



Dental nurse and practice manager **Priya Sharma** grew up in Canada and moved to the UK in 2006. In addition to writing for *BDJ Team*, Priya has a varied background in pharmacy and pharmacovigilance, sits on the GDC's fitness to practise panel, and is married with two children.

I usually get up by 5 am in order to have everything organised for the children and be able to keep up for the rest of the day. A coffee is a must. My husband and I have two lovely children: our daughter is nine and our son is five. They truly are the centre of my universe.

I was born in Boston, USA then when I was five-years-old my family and I moved to Canada. I moved to the UK in 2006.

I currently live in Chorleywood, Hertfordshire. It gives you the serenity and beauty of the countryside while being close enough to London.

I usually take the train to Marylebone station - it takes approximately 30 minutes - and then take a quick refreshing walk to Lister House Dental Clinic on Wimpole Street.

If I am working for the General Dental

Council in my role as a fitness to practise panellist (on which I have served since 2013) then the hearings can take place in various locations in London such as Wimpole Street, Farringdon and Liverpool Street. In addition to being a dental nurse and practice manager, I write articles and review policies for various

publications and companies, and I usually do this work from the practice.

For me there is no such thing as a typical week - it unfolds with various different assignments. I have become quite competent in prioritising and time management. It keeps it all very exciting.

'LIFE HAS AN ABUNDANCE OF OPPORTUNITIES; YOU

JUST NEED TO HAVE THE COURAGE AND PERSEVERANCE

TO TAKE ON NEW CHALLENGES AND ALWAYS SEEK

TO CREATE A BETTER VERSION OF YOURSELF.'

Lunch is usually a quick affair at the desk but we do treat ourselves to lovely lunches and coffees on Marylebone High Street.

When I left high school, my plan was to pursue a career in either healthcare or the medical field for as I come from a family of people in academia or medicine, it seemed the natural thing to do. I have a degree in Sociology and Pharmacy from the University of Saskatchewan, Canada.

After graduating, I worked in various community and hospital pharmacy settings. I quite quickly became a manager of an extremely busy medical clinic pharmacy and acquired most of my managerial training 'on the job'. It was a steep learning curve but I seemed to thrive in the environment.

Throughout this time I developed my medical and pharmaceutical writing portfolio contributing to journals and magazines. I also sat on numerous committees, served as an expert review and award appraiser and sat on the Editorial Advisory board of the *Pharmacy Practice* journal. I have presented at various conferences and taught students at university level. I managed to keep up with some of my roles after my move to the UK but this became extremely challenging with the time difference and not everything could be done virtually.

We visit my family in Canada at least annually and they often visit us here.

My husband Pradeep is a dentist, so I moved into dentistry by default. We had

is endless and you must push boundaries and be adventurous. I am probably one of the few people who was a dental practice manager first and dental nurse second. I had thought that it was mandatory to have some dental foundation before managing dental practices so I took the National Certificate in Dental Nursing and enjoyed the course.

As well as the Lister House Dental Clinic on London's Wimpole Street, we have a practice in Buckinghamshire. At any one time I am responsible for the dental team members at both practices.

I simply enjoy what I do. I have a wide of array of dental roles and each one is equally as important as the other. All the work I do is fairly demanding; hectic would be an understatement but I truly take great pride in all that I do. Life has an abundance of opportunities; you just need to have the courage and perseverance to take on new challenges and always seek to create a better version of yourself.

After work I do my best to try to collect the children from school and this indeed is the best part of my day. We often share some very interesting stories on the way home along with an abundance of laughter. My evenings are devoted to the family and I truly cherish my time with them. Often the evening requires one last proofread of a document or dealing with other work related matters which I often do once the children have gone to bed.

Dinner is always with the family. We get to share the adventures we each had on any given day ... it also helps plan for the next day.

1. Sharma P. The professional approach to handling complaints. *BDJ Team* February 2017; doi:10.1038/bdjteam.2017.30. Available at: <https://www.nature.com/articles/bdjteam201730>.
2. Sharma P. What is safeguarding? *BDJ Team* May 2017; doi:10.1038/bdjteam.2017.78 Available at: <https://www.nature.com/articles/bdjteam201778>.
3. Sharma P. All change please... Enhanced CPD. *BDJ Team* October 2017; doi:10.1038/bdjteam.2017.154. Available at: <https://www.nature.com/articles/bdjteam2017154>.

Interview by Kate Quinlan

bdjteam20187

'MY EVENINGS ARE DEVOTED TO THE FAMILY AND I TRULY CHERISH MY TIME WITH THEM. WE GET TO SHARE THE ADVENTURES WE EACH HAD ON ANY GIVEN DAY ... IT ALSO HELPS PLAN THE NEXT DAY.'

I have been very lucky to have had the most interesting and rewarding roles. I served as a medical information consultant for a province in Canada. This role was extremely interesting. I would receive requests for anything medication related; the questions were always diverse and were the ones that really did not have any answers. I spent hours researching and liaising with various health professionals nationally and globally to come to a succinct evidence-based robust answer. I was mindful of the fact that my recommendation would determine the treatment in a patient. The types of questions were wide-ranging: what to administer to a patient where many of the medications were contraindicated, the safety of various medicines in pregnancy and lactation, complicated medical histories, adverse effects, drug interactions and so forth.

Armed with this knowledge I then became the Coordinator for the Canadian Adverse Drug Reactions Monitoring Programme (Health Canada) in our province. This was a very challenging role addressing potential adverse effects which have not been reported: essentially the pharmacovigilance of medications on the Canadian market.

bought two dental practices simultaneously and I had offered to help out initially ... ten years later I am still here not because I have to but because I absolutely love what I am doing.

I was very keen on pursuing pharmacy in England. However, initially when I enquired with the Royal Pharmaceutical Society I was informed that the path for registration in the UK would be long and a bit complicated, rather surprising as I graduated from Canada. At this stage I decided it was time for a career change and began looking at other avenues. Surprisingly I am still able to utilise many of the skills from being a pharmacist in the dental world. I also have an ever expanding writing portfolio in the field of dentistry contributing to various publications such as *BDJ Team*,¹⁻³ *Dentistry* and *Dental Nursing*. I am very passionate about writing and feel it is important to contribute.

I have also taken on a role to write and review policies for a medical and dental compliance company, and recently I have become an examiner for the National Examining Board for Dental Nurses (NEBDN).

The potential of a career in dental nursing

Medical emergencies: asthma



CPD questions

*This article has four CPD questions attached to it which will earn you one hour of verifiable CPD. To access the **free** BDA CPD hub, go to <http://bit.ly/2e3G0sv>*



Emma Hammett¹ provides an up to date guide on

managing patients who have an asthma attack in the dental practice.

Asthma is an extremely common chronic condition that can be triggered and exacerbated by the stress of visiting the dentist.

When someone is having an asthma attack, their airways go into spasm which causes tightness of the chest; the linings of the airways become inflamed and phlegm is produced further obstructing the airways and leading to severe difficulty in breathing (Fig. 1). Asthma does lead to fatalities and should always be taken seriously.

Anyone who has been prescribed an inhaler should have it with them at all times.

¹ Emma Hammett RGN of First Aid for Life is an experienced nurse, trainer, first aid expert and published writer. Emma provides the information in this article for guidance and it is not in any way a substitute for medical advice. First Aid for Life is not responsible or liable for any diagnosis made, or actions taken based on this information.

Emma says: 'First Aid for Life is an Award Winning and fully regulated first aid training provider and our trainers are highly experienced medical and emergency services professionals. We run practical courses for medical professionals throughout London: training in Emergency Life Support, choking, fitting, anaphylaxis and AED. Our training is always tailored to the needs of those attending and we are more than happy to cover any additional medical concerns as well. The course qualifies as verifiable CPD. We also have online first aid courses to update and refresh knowledge between the practical training.'

<http://www.firstaidforlife.org.uk> emma@firstaidforlife.org.uk Tel: 020 8675 4036

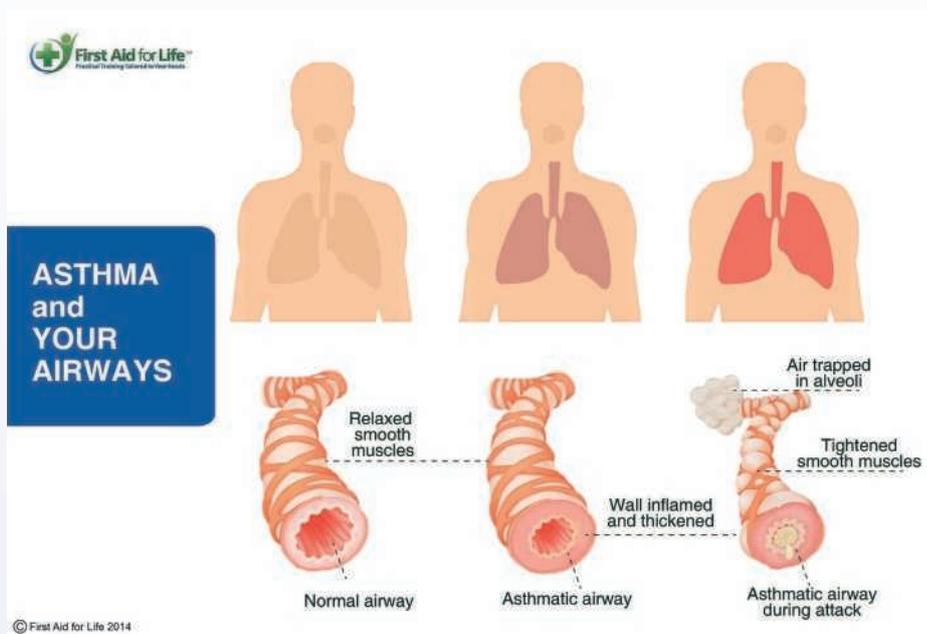


Fig. 1 Asthma and your airways. This poster is available free of charge from emma@firstaidforlife.org.uk



Fig. 2 Triggers for an asthma attack. This poster is available free of charge from emma@firstaidforlife.org.uk

Common asthma triggers

There are many different triggers for asthma attacks and many asthmatics are well aware of their individual triggers, although they may not always be able to avoid them (Fig. 2).

Inflammatory factors that might trigger an asthma attack include allergens, work and respiratory infections. Irritants that might trigger an attack include strong smells, cold air and temperature change, exercise or

stressful and emotional environments.

Other triggers for a potential asthma attack include pollutants, food additives, gastric reflux, tobacco and medications.

Symptoms of asthma

Symptoms of asthma include:

- A persistent cough (when at rest)
- A wheezing sound coming from the chest (when at rest)



Fig. 3 Patient with asthma using volumiser, sitting upright



Fig. 4 Patient with asthma using volumiser sitting the wrong way round on a chair

- Difficulty breathing (breathing fast and with effort, using all accessory muscles in the upper body)
- Nasal flaring
- Unable to talk or complete sentences and possibly going very quiet
- An asthmatic patient may try to tell you that their chest 'feels tight' (young children may express this as tummy ache).

You must call an ambulance immediately and commence the asthma attack procedure without delay if someone:

- Appears exhausted
- Has a blue/white tinge around lips
- Is going blue
- Has collapsed.

Not everyone will get all of these symptoms.

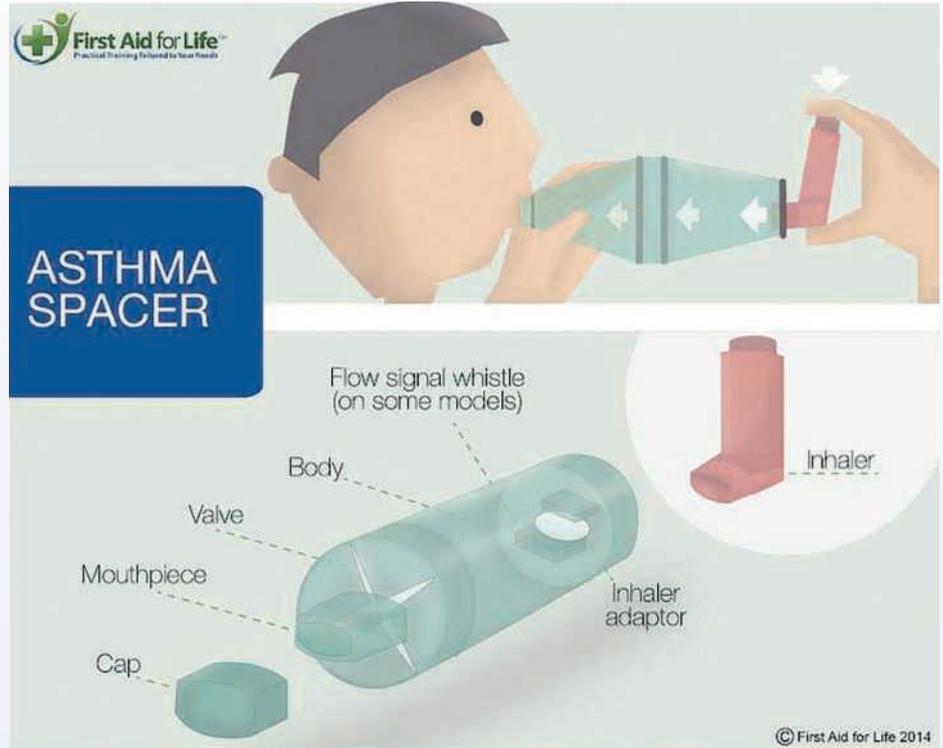


Fig. 5 Asthma spacer. This poster is available free of charge from emma@firstaidforlife.org.uk

***'DO NOT TAKE A PATIENT EXPERIENCING AN
ASTHMA ATTACK OUTSIDE FOR FRESH AIR
IF IT IS COLD - AS COLD AIR CAN
MAKE SYMPTOMS WORSE.'***

Encouraging someone to sit upright is generally helpful when dealing with breathing problems (Fig. 3). Sitting the wrong way round on a chair may be a good position for them, as demonstrated in Fig. 4.

Do not take a patient experiencing an asthma attack outside for fresh air if it is cold – as cold air can make symptoms worse.

Spacers/volumisers

Using a spacer or volumiser device has been shown to deliver medication more effectively and increases the amount of the medication reaching the airways rather than hitting the back of the throat. The use of a spacer device can help sufferers achieve better control of their asthma (Fig. 5).

Spacers come in a variety of shapes and sizes, but not all spacers fit all types of inhalers – use the spacer prescribed with the inhaler. Spacers for small children are usually fitted with a face mask. There is considerable co-

ordination required to use an inhaler without a spacer and this can lead to increased stress and worsening of symptoms.

Patients should always keep the spacer with the inhaler and have both available at all times.

How to help in an asthma attack

The following guidelines are suitable for both children and adults (Fig. 6).

- Calm the situation and reassure the casualty as this can help them to control their symptoms; conversely, panic can increase the severity of an attack. Assist them to take one to two puffs of the reliever inhaler (usually blue) – using a spacer device if available.
- Sit them down, loosen any tight clothing and encourage them to take slow, steady breaths
- If they do not start to feel better, they should take more puffs of their reliever

HOW TO DEAL with an ASTHMA ATTACK

Step 1
Help the casualty to take their usual dose of reliever (usually blue) inhaler immediately, preferably through a spacer.

Step 2
Sit the casualty upright
Get them to take slow steady breaths
Keep calm and try to keep them calm
Do not leave them unattended

Have the symptoms improved immediately?

No
Step 3
Continue to give two puffs of reliever inhaler every two minutes, up to 10 puffs

Step 4
If the casualty does not start to feel better after taking the reliever inhaler as above or if you are worried at any time call 999

Step 5
If an ambulance does not arrive within 10 minutes repeat step 3 while you wait

Yes
Continue to sit with the casualty until they are feeling completely well and can go back to previous activity

If the casualty is a child, parents/carers should be informed

Signs of an asthma attack can include any of these
Coughing
Being short of breath
Wheezy breathing
Being unusually quiet
Tightness in their chest - some children express this as tummy ache

If the casualty is a child, parents/carers should be informed

© First Aid for Life 2014

Fig. 6 How to help in an asthma attack. This poster is available free of charge from emma@firstaidforlife.org.uk

inhaler (up to ten at roughly two minute intervals)

- If there is no improvement after taking their inhaler as above, or if you are worried at any time, call 999/112
- The patient should keep taking the reliever inhaler two puffs every two minutes, whilst waiting for the paramedics to arrive.

Please note that if the patient has taken more than ten puffs at a time it won't have done them any harm. Salbutamol is a well-tested medication and the main side effects from overdosing are lightheadedness and a slight tremor of the hands – both of which will resolve without treatment.

After an asthma attack

Within 48 hours of an attack, the patient should make an appointment with their doctor or asthma nurse for an asthma review.

People often have a variety of different asthma inhalers and medication to control their asthma – if they are having an asthma attack it is the reliever inhaler that they need. Reliever inhalers are usually blue and

‘CALM THE SITUATION AND REASSURE THE PATIENT AS THIS CAN HELP THEM TO CONTROL THEIR SYMPTOMS; PANIC CAN INCREASE THE SEVERITY OF AN ATTACK’

the other inhalers are often steroid based to reduce their sensitivity to asthma inducing agents.

Visit www.firstaidforlife.org.uk, email emma@firstaidforlife.org.uk or telephone 0208 675 4036 for more information about the first aid training we provide for dental practices throughout the UK. We also have a great range of online first aid courses through www.onlinefirstaid.com that are ideal for first aid refreshers and for completion of your verifiable CPD. First Aid for Life provides this information for guidance and it is not in any way a

substitute for medical advice. First Aid for Life is not responsible or liable for any diagnosis made, or actions taken based on this information.

CPD questions

This article has four CPD questions attached to it which will earn you one hour of verifiable CPD. To access the free BDA CPD hub, go to <http://bit.ly/2e3G0sv>

bdjteam20188

‘It is a *privilege* to be the incoming BADN President’



Hazel Coey is a Dental Tutor for Workforce Transformation Thames Valley, Health Education England. Hazel began working as a dental nurse over 30 years ago and this year is President of the British Association of Dental Nurses (BADN).

Interview by Kate Quinlan

Starting out in dentistry

I am originally from a small hamlet in Buckinghamshire but I now live near Leighton Buzzard. I first became a dental nurse in 1985 at a small village dental practice. I was only four miles from home, in the next village, and the part-time hours suited me. The great thing about dental nursing is that there are usually part-time/full-time jobs available, which fit in with a family. I have three children and these days, five grandchildren as well, aged between one and 17.

With dental nursing I enjoyed meeting people and working with some lovely colleagues. I went to college and studied for a dental nursing qualification as I wanted to understand the science behind the practical dentistry. I also wanted to be professional at my job.

After working as a dental nurse I went to RAF Halton to study as a dental hygienist, but could not finish my course due to a family tragedy. A short time later the Wing Commander (a periodontist) asked me back to work for his team in a research project. This was in fact the ‘PerioChip’, which became very successful and beneficial to patients.

While at RAF Halton, I also studied for the Further Adult Education Teaching Certificate (FAETC), studying on an evening course at Aylesbury College. I then became a locum Dental Nurse Tutor, covering during sickness, and finally took over the course when the Tutor retired. I carried on with my studies and gained the Certificate in Education, which led on to a BA(Hons) degree.

I went to work in an oral health promotion team in Buckinghamshire, as I had gained my certificate in oral health education (OHE) and wanted to use it. I achieved the qualification by driving from Oxford after work to Matthew Boulton College in Birmingham every week, for a one year course, as this was not available locally. So I think it fair to say that oral health education is a real passion of mine.

I volunteered to become an examiner for the National Examining Board for

even now, I don’t think that dental nurses have the status that they deserve; after all, qualifying with a Level 3 Diploma is broadly comparable to two A-levels.

I was on the Voluntary Register of dental nurses before statutory registration came in. Registration has brought a professional status to dental nurses, but I don’t believe that the general public are necessarily aware of this. Dental nurses are not the sort of profession who ‘sing their own praises’.

‘REGISTRATION HAS BROUGHT A PROFESSIONAL

STATUS TO DENTAL NURSES... [BUT]

DENTAL NURSES ARE NOT THE SORT OF

PROFESSION WHO “SING THEIR OWN PRAISES”.’

Dental Nurses (NEBDN) in 1994, as it was essential to pitch the correct exam level for my students, by being involved and understanding the NEBDN examination requirements.

Dental nursing over time

I have seen many changes to dental nursing over the years, including the wearing of Personal Protective Equipment (PPE) - we did not even wear gloves when I started! However,

Regarding working conditions and salaries for dental nurses, I really hope that things are improving and moving in the right direction. So many dental nurses are afraid to speak up for themselves and can be undervalued. That is why joining the British Association of Dental Nurses (BADN), their voice, is so important.

There are also many dental nurses that have excellent working conditions and are employed by innovative dental practices.

Joining the BADN

I joined the BADN so long ago that I cannot say when, but I am a Fellow of BADN, which you only achieve after being a member for over ten years.

It is a privilege to be the incoming BADN President. I aim to meet as many BADN members as possible during my presidency, and have a strong voice on their behalf.

As an Association we are running a salary survey at present, to give a clear picture of pay scales. This we will share with the General Dental Council (GDC), our regulating body. At present the Annual Retention Fee (ARF) stands at £116.00; this is a huge increase on the initial £72.00 which the GDC collected from dental nurses in 2008. We

Outside work

I live with Ray, my husband of many years. I enjoy reading, visiting National Trust houses and sites and going swimming, bowling and to the cinema with my grandchildren (exhausting!), some of whom live in Cornwall, where we take them surfing.

I have always tried to encourage my family in healthy eating and oral hygiene. This is easier said than done with your own family, but I do have a ready supply of toothbrushes and interdental aids when they come to stay!

I would definitely recommend dental nursing as a career! I have so enjoyed my work to date; working with people is at the top - my colleagues are such professional and lovely people. So many of them are very close

'I HAVE SO ENJOYED MY WORK TO DATE; WORKING

WITH PEOPLE IS AT THE TOP - MY COLLEAGUES

ARE SUCH PROFESSIONAL AND LOVELY PEOPLE.

SO MANY OF THEM ARE VERY CLOSE FRIENDS NOW.'

are also conducting a multi-faceted Member Engagement Review which will lead to the development of our Member Engagement Plan in 2018.

In my role as President I have a full diary: to begin with I am attending BADN Conference at Milton Keynes on 17-18 November 2017. This is followed by GDC meetings, DCP meetings and BADN Executive committee meetings.

In 2018, I shall be chairing the Dental Nurse Forum at the British Dental Conference and Dentistry Show, and manning the BADN stand at BDIA Dental Showcase, and attending other shows around the country such as the Scottish Dentistry Show and the BDA Scottish Conference. BADN also are working with the Royal College of Edinburgh on their Study Day in March 2018.

I work part-time at the moment as a Dental Tutor/DCP Development Tutor for HEE Thames Valley. I have been BADN Treasurer for two years now, and have always been supported by my employers to enable me to attend these meetings.

friends now. I have also enjoyed working in the dental surgery, schools, working with health visitors, early learning teams, learning disability teams, hospitals, prisons, nursing homes, healthy living centres, colleges ... really I have been everywhere - even on the BBC local news once, promoting Mouth Cancer Awareness Week!

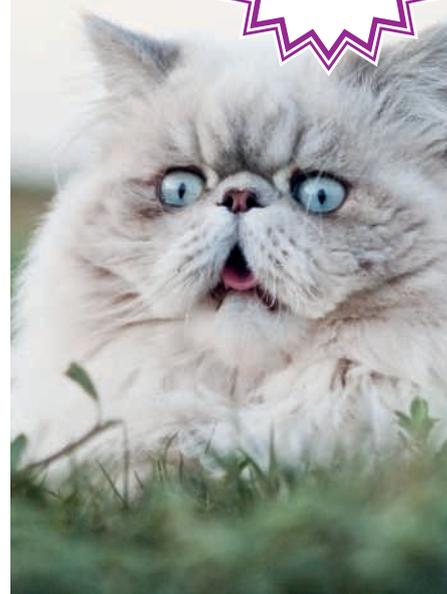
The three things (besides people) that I could not live without are tea, when I wake up - my husband always makes me a morning cuppa! - my Kindle (or books), as I read every night before I sleep, and my National Trust card, as I love the countryside, and visiting wonderful places that the NT protect.

To find out more about the British Association of Dental Nurses (BADN) and membership options, visit www.badn.org.uk.

bdjteam20189

**21 free
hours of
CPD?
WHY
DIDN'T
YOU TELL
ME?**

FREE



BDJ Team



How practices can facilitate access for the gypsy traveller community

By **E. G. Walshaw¹** and **A. Ireland²**

Gypsy travellers have poor health in comparison to the UK average. They may struggle to access emergency and routine dental care because of social, educational and cultural barriers. General dental practitioners can facilitate better oral health within the community by improving access, which may require some adaptation to conventional practice. This paper discusses the experiences of a practice within West Oxfordshire and highlights areas in which the authors have found small modifications to aid appointment attendance and patient motivation. Primary care dental practitioners come across a wide variety of patients from very diverse backgrounds. Following a year working in West Oxfordshire, one group of patients has particularly stood out – the travelling community. The term ‘traveller’ or ‘gypsy’ refers to ‘persons who wander or travel for the purpose of making or seeking their livelihood (not persons who move from place to place without any connection between their movements and their means of livelihood)’ and includes those who live permanently or temporarily in settled housing. There are many different socio-cultural groups within this broad definition, including Romany Gypsies, Irish Travellers, Scottish Travellers and Eastern European Roma Communities.

Background

Oxfordshire has an estimated 678 travellers¹ although there are between 150,000 and 300,000 within the UK.² This figure is most likely an underestimate as many travellers are reluctant to disclose their identity for fear of discrimination.³ These Oxfordshire residents are spread across 13 authorised sites, six of which are permanent council-owned sites and the remainder privately run. The site located most closely to our rural Oxfordshire practice is privately owned Bampton.

Bampton has an undisclosed number of pitches and therefore the number of residents is not readily available. It is owned by a private landlord who allows gypsy residents to settle long-term at the site; it is not known whether the landlord is himself from the travelling community. These Bampton residents are relatively ‘lucky’ in comparison to the 20% of travellers who have no legal place to stop their caravan and are considered homeless, living on unauthorised sites.⁴

Health demographics

The World Health Organisation on Social Determinants of Health discussed the prospect of ‘closing the gap’ in health inequalities within a generation in 2008.⁵ It is well established that the general health of the travelling gypsy community is worse than that

of the UK average, as demonstrated by data summarised in Table 1.

Providers of healthcare have traditionally struggled to engage with traveller communities, as there exists a fundamental mistrust of health services and healthcare personnel by the communities.¹² Decreased trust leads to reduced utilisation of services, poor health behaviours and reduced quality of care.¹³

Barriers to accessing healthcare do include mobile lifestyles,¹⁴ however this does not account for poor health in settled travellers. Cultural barriers include normalisation of ill health and pride in self-reliance.¹⁵

Young people from the travelling community leave school at an average age of 12.6 years, in comparison to the UK average of 16.4 years.⁸ Lower levels of education mean that ‘simple’ tasks such as reading health instructions for medications can be difficult, and this is further complicated by the fact that many parents within the community will not be able to help.

Changing attitudes

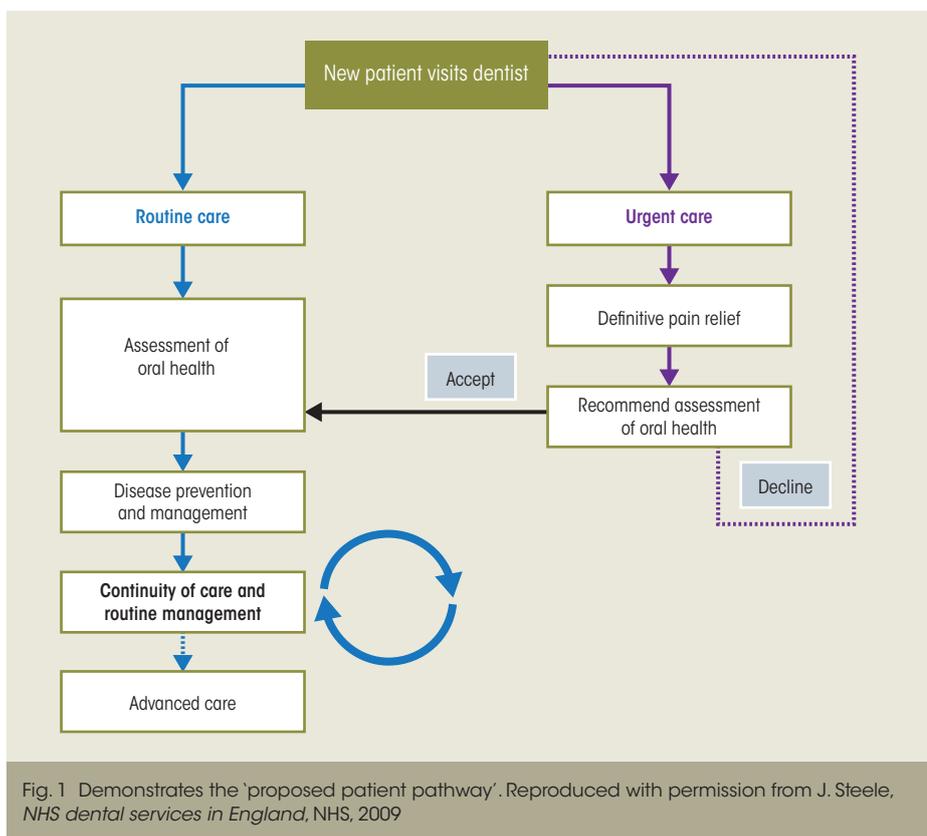
In order for the dental profession and our

¹ *F1 General Dental Practitioner,*

² *Consultant in Dental Public Health, NHS North Central London*

Table 1 General health measures in the gypsy community and UK comparators

	Travelling community vs UK comparators
Life expectancy ⁶	Females = -11.9 years Males = -9.9 years
Mortality rates ⁷	350% increase
Health status rated as poor ⁸	30% vs 14%
Presence of long-term condition ⁸	42% vs 31%
Measles rates ⁹	100 × higher incidence
Infant mortality ¹⁰	4 × higher incidence
Anxiety and depression ⁸	39% vs 13%
Suicide rates ¹¹	3 × higher incidence



community are strong. Fear and experiences of previous generations still resonate and inhibit current patients from taking advantage of treatments offered to them. Anecdotally, following an examination on a young child and his mother I explained that the child would need numerous restorations and extractions, suspecting they would only tolerate this with inhalation sedation. This is something the mother became distressed about and refused referral as she stated her husband knew of a child who died following ‘gas’ for dental treatment. As dental practitioners are aware, there has not been a death from general anaesthesia in a UK dental practice since it was banned in 2002. This conversation highlighted to me that despite the huge improvements in the safety in dental sedation in recent decades, the knowledge of past adverse events still prevents consent from the older generations for younger patients’ care.

For many Romany gypsies the concept of ‘marime’ is fundamental, particularly as it applies to personal hygiene. ‘Marime’ relates to being polluted in both a moral and physical sense.¹⁷ Romany patients may find being treated by a non-Romany healthcare worker, particularly a female, a risk to their own purity, and so reassurance about the sterility of equipment such as needles always being used only once may be integral in gaining their trust.

Practice modifications

Our aim as dental professionals is to help patients achieve optimal oral health. To effectively treat the travelling community we need to modify our approach to better suit their specific needs. After discussions with matriarchal figures within the community it was highlighted to me that a few simple measures could increase engagement with dental practitioners. The following is an explanation of how we have implemented changes to suit the community better within our practice:

High levels of illiteracy within the community, estimated up to 90%,¹⁸ mean that usual text/email reminders are fruitless. As a countermeasure we have tried to ensure all known traveller patients are identified by reception staff within 24 hours of their appointment, and are prioritised for phone call reminders to verbally confirm appointments

High illiteracy rates also indicate there may be complexities with relatively ‘simple’ tasks – such as reading medication instructions or signing consent forms. It is therefore essential these are discussed verbally. Patients should be reassured that if they need further assistance regarding how to take medications, for example dosing schedules, they are able to phone the surgery or speak to a pharmacist.

patients within the travelling community to have a mutually beneficial relationship, attitudes on both sides need to change.

It is particularly difficult to establish a substantive professional relationship with patients of the community when they are seen solely during urgent appointments. The formation of an empathetic and constructive dialogue is hindered by the significant distractions of dental phobia and pain. Professor Jimmy Steele discussed the ‘proposed patient’ pathway in his 2009 Independent

Review of NHS dental services; see Figure 1.¹⁶ This pathway demonstrated that patients may either attend for routine or urgent care. Those of whom have attended for urgent care may not want to progress into routine dental care. This is a choice we must respect, despite it being potentially frustrating for the dental professional. However, we should try to encourage urgent patients to attend for routine care, and must make them aware of the benefit of services that are on offer to them.

Transgenerational beliefs within the

Box 1 Hints and tips for dental professionals on how to engage with the gypsy travelling community

- Consider using verbal methods of appointment reminders
- Be flexible with appointment timings
- Highlight 'cosmetic' benefits of completing treatment plans
- Discuss improvements in the safety of treatments, such as sedation
- Arrange exam appointments after pain appointments

Difficulties in ability to tell the time can also result in conflict between the community and dental practices. Patients can often arrive very early or late to appointments, and if they are refused appointments can feel isolated or rejected enough to limit future engagement with the service. If possible we have aimed to schedule appointments around the dentist's lunchtime, to try and cause as little disruption as possible and provide a degree of flexibility

Limited health knowledge can mean the traveller community see little benefit in primary prevention or treating disease which is not causing pain. First-hand experience suggests it is easier to encourage these patients into routine preventative and restorative care by highlighting

of negative health outcomes is still present. This has proven to be the most useful tool in my practice to encourage patients to want to engage in a course of treatment.

Box 1 summarises the proposed changes that any general dental practice within the UK could make to engage this community more effectively. Of course, depending on the region, there may be variation in gypsy attitudes to health and their level of education, which may influence the extent to which modifications may be necessary. Practice-based training about the particular needs of this community would be valuable, to ensure the whole dental team are aware of the need for flexibility.

Conclusion

In the UK, even though our population is very diverse and oral health is generally good, there are still some patient groups who are less likely to access care and have poor oral health. We as general dental practitioners have a duty to provide care to our local communities, of which the gypsy travellers are a part. Through a different approach, encouragement and increased engagement we can help to reduce reluctance to seek dental care. The adoption of simple measures by practices can facilitate access and help ensure future generations of gypsies and travellers benefit from the increased quality of life that good health can provide.

Sites. House of Commons, 2004, publication no. HC 633-1.

5. Marmot M, Friel S, Bell R, Houwelling T A, Taylor S. Commission on Social Determinant of Health. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet* 2008; **372**: 1661-1669.
6. Barry J, Herity B, Solan J. The Travellers' health status study. Vital Statistics of Travelling People 1987. Dublin: Health Research Board, 1989.
7. Abdalla S, Quirke B, Daly L, Fitzpatrick P, Kelleher C. All Ireland Traveller Health Study: increasing gap in mortality between Traveller and general populations in the Republic of Ireland over two decades. *J Epidemiol Community Health* 2010; **64**: A23.
8. Parry G, Van Cleemput P, Peters J, Walters S, Thomas K, Cooper C. Health status of Gypsies and Travellers in England. *J Epidemiol Community Health* 2007; **61**: 198-204.
9. Maduma-Butshe A, McCarthy N. The burden and impact of measles among the Gypsy-Traveller communities, Thames Valley, 2006-09. *J Public Health* 2013; **35**: 27-31.
10. All Ireland Traveller Health Study. The Birth Cohort Study Follow Up. Dublin: University College Dublin, 2011.
11. Walker M R. Suicide among the Irish Traveller Community 2000-2006. Wicklow: Wicklow County Council, 2008.
12. McGorrian C, Frazer K, Daly L *et al*. The health care experiences of Travellers compared to the general population: the all-Ireland Traveller health study. *J Health Serv Res Policy* 2012; **17**: 173-180.
13. Kukla R. Conscientious autonomy: displacing decisions in health care. *Hastings Cent Rep* 2005; **35**: 34-44.
14. Aspinall P J. A review of the literature on the health beliefs, health status, and use of services in the Gypsy Traveller population, and the appropriate health care interventions. Cardiff: Office of the Chief Medical Officer, Welsh Assembly Government, 2006.
15. Van Cleemput P. Social Exclusion of Gypsies and Travellers: health impact. *J Res Nurs* 2010; **15**: 315-327.
16. Steele J. NHS Dental Services in England. An independent review led by Professor Jimmy Steele June 2009. London: Department of Health, 2009, publication no. 295933.
17. Leeson P T. Gypsy Law. *Public Choice* 2013; **155**: 273-292.
18. Liegeois J-P, Gheorghe N. *Roma/gypsies: a European minority*. 1st edition. London: Minority Rights Group, 1995.

This article was originally published in the BDJ in Volume 223 issue 8, pages 607-609.

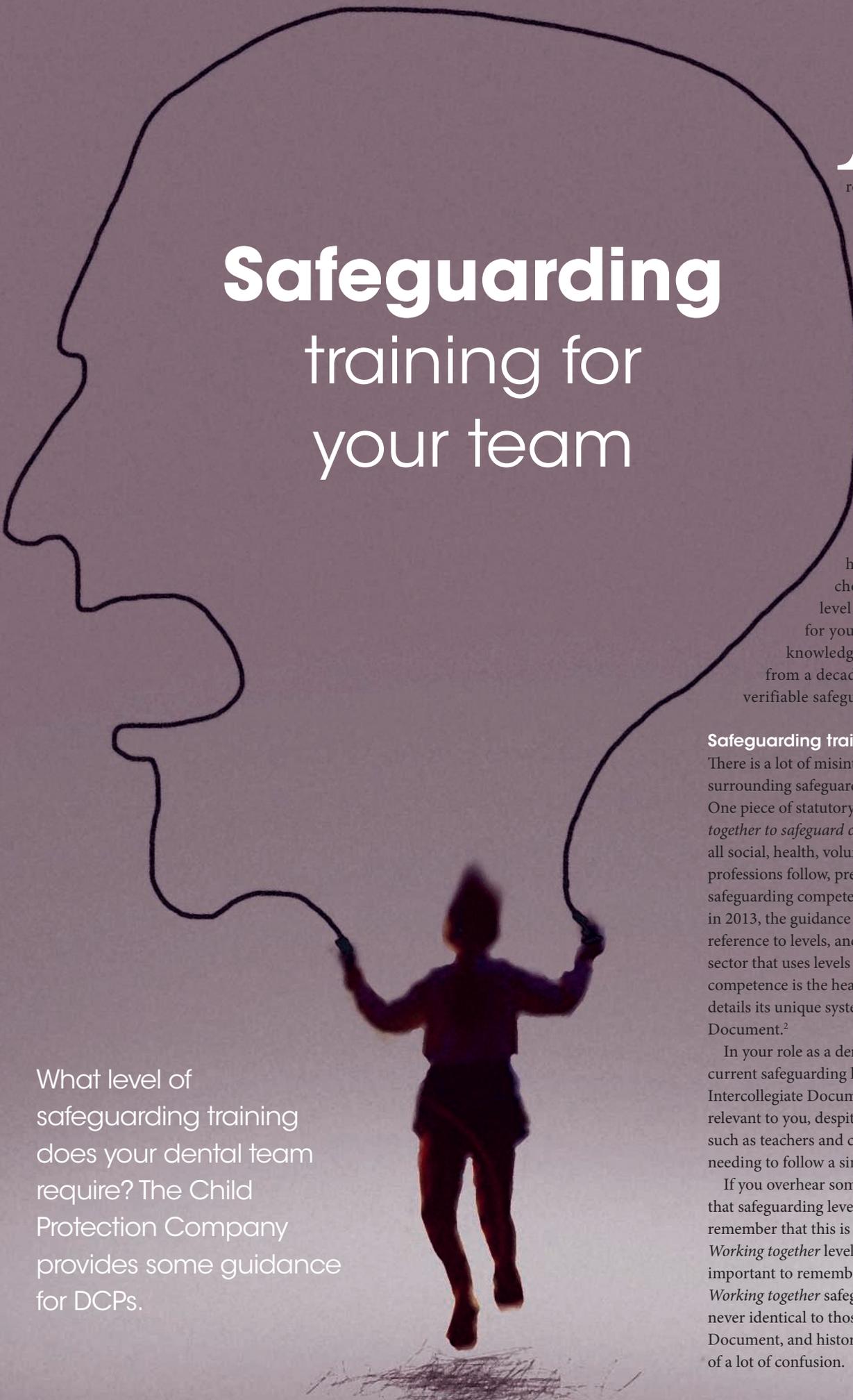
bdjteam201810

'PRACTICE-BASED TRAINING ABOUT THE PARTICULAR NEEDS OF THIS COMMUNITY WOULD BE VALUABLE, TO ENSURE THE WHOLE DENTAL TEAM ARE AWARE OF THE NEED FOR FLEXIBILITY.'

the 'cosmetic' benefits. Examples of this include emphasising the importance of fresh breath for social interactions, and offering restoration of numerous carious lesions before placing a resin-retained bridge in the aesthetic zone. Young adolescents in particular are interested in orthodontic referrals, for which numerous prevention appointments can be justified before a referral can be made. By improving their oral health understanding and status before their primary concern is addressed, we increase the knowledge within the community as the information is likely to be disseminated

Following urgent appointments the patient should be encouraged to book an exam within a relatively short time frame, whilst the experience

1. Winton C, Hill K. Gypsy and Traveller Community experiences of healthcare in Oxfordshire. A Project Fund report. Healthwatch Oxfordshire, 2016.
2. Council of Europe. Roma and Travellers. 2012. 2017. Online information available at http://www.coe.int/t/dg3/romatravellers/archive/documentation/strategies/statistiques_en.asp (accessed July 2017).
3. Wilkin A, Derrington C, Foster B. Improving outcomes for Gypsy, Roma and Traveller pupils: literature review. London: Department for Children, Schools and Families, 2009, publication no. DCSF-RR077.
4. ODPM: Housing, Planning, Local Government and the Regions Committee. Gypsy and Traveller



Safeguarding training for your team

What level of safeguarding training does your dental team require? The Child Protection Company provides some guidance for DCPs.

All staff who work in a dental setting are required to undertake recognised, certifiable safeguarding training, and to ensure that this training is refreshed regularly. However, many dental teams find it difficult to interpret training levels and to decide who needs which course. In this article, the Child Protection Company hopes to assist you with choosing the correct level of training required for your role, by using the knowledge it has accumulated from a decade of specialising in verifiable safeguarding training.

Safeguarding training levels

There is a lot of misinterpretation surrounding safeguarding levels in the UK. One piece of statutory guidance, *Working together to safeguard children*,¹ which nearly all social, health, voluntary and community professions follow, previously measured safeguarding competences in levels. However, in 2013, the guidance dispensed with all reference to levels, and today, the only major sector that uses levels to measure safeguarding competence is the healthcare sector – which details its unique system in the Intercollegiate Document.²

In your role as a dental professional, the current safeguarding levels outlined in the Intercollegiate Document are still highly relevant to you, despite other professions such as teachers and childminders no longer needing to follow a similar system.

If you overhear somebody saying that safeguarding levels no longer apply, remember that this is only in reference to the *Working together* levels system. It is equally important to remember that the now obsolete *Working together* safeguarding levels were never identical to those in the Intercollegiate Document, and historically, this was the cause of a lot of confusion.

What does this mean for me?

In short, this means that when searching for a suitable safeguarding training course, you need to ensure that the training outcomes meet the requirements for your specific level, as outlined in the Intercollegiate Document. If you can see no reference to healthcare levels, it is always best to confirm that the course is suitable for you by contacting your NHS Trust or Local Safeguarding Children Board first.

Generally speaking, staff in a dental practice should only require the first two levels of safeguarding training. Level 1 is a requirement for **all** staff members. Level 2 is a requirement for all clinical staff, plus any non-clinical staff who perform duties that require more in-depth contact with children, young people, vulnerable adults and/or parents/carers.

It is rare that a member of general dental

for every member of staff in a dental practice: you **must** have an up-to-date certificate in Level 1 safeguarding training. Even staff who require training at Levels 2 or 3 should complete Level 1 training as well, because this provides the basic knowledge that further training will build upon.

Topics that should be covered in a Level 1 safeguarding course include:

- Recognising signs and indicators of potential abuse, including physical, emotional, sexual, neglect, FGM [female genital mutilation], child trafficking and induced illness

online Introduction to Adult/Child Protection training course developed specifically for the dental sector, which is recommended by the British Dental Association (BDA) and is recognised as being broadly in line with the Level 1 requirements of the Intercollegiate Document. The course takes between 1.5-2 hours to complete, and is equivalent to three hours of verifiable CPD. You will receive a certificate valid for two years upon successful completion.

Do I need Level 2 training?

It is safe to assume that all staff working in a

‘EVERY MEMBER OF STAFF IN A DENTAL PRACTICE MUST HAVE AN UP-TO-DATE CERTIFICATE IN LEVEL 1 SAFEGUARDING TRAINING...’



staff will require Level 3 training, which is usually reserved for specialist paediatric dentists and those who have more direct involvement with children, or who deal with child protection as a regular feature of their work – but Level 3 training may also be a requirement for staff with a lead role or special interest in child protection or dental education.

Safeguarding Levels 4 and 5 are reserved for named and designated professionals, and it is unlikely that you will need this level of training within a general dental practice.

Do I need Level 1 training?

Whether you work in a clinical or non-clinical capacity, one requirement remains the same

- Understanding how a parent/carer’s physical and mental health can have an impact on a child’s development and wellbeing
- Understanding the importance of sharing information
- Knowing what to do if concerns are not taken seriously when referring a child/family
- Online safety
- Knowledge of relevant legislation and guidance
- How to report concerns safely and seek advice
- Defining the term ‘looked after child’.

The Child Protection Company offers an

clinical capacity, as well as any non-clinical staff whose duties require them to have more in-depth contact with children, young people or vulnerable adults, will require Level 2 training. Certainly, all dentists, dental nurses and other dental care professionals (DCPs) require Level 2 training, as is explicitly stated in the Intercollegiate Document.²

Topics that should be covered in a Level 2 safeguarding course include:

- All topics listed above for Level 1
- Awareness of normal child development and the ways abuse and neglect can impact this in the short- and long-term
- Understanding factors that may be associated with child abuse, eg parental mental health problems, chronic conditions, drugs and alcohol abuse, domestic violence
- The legal, professional and ethical responsibilities of information sharing, including the use of assessment frameworks and directories
- Data protection, including best practice for documenting and reporting issues, and record-keeping
- Understanding the purpose of serious case reviews
- The importance of the child or young person’s best interests as reflected in legislation and statutory/non-statutory guidance.

The Child Protection Company also offers an online Further Adult/Child Protection

training course developed specifically for the dental sector, which is recommended by the BDA and is recognised as being broadly in line with the Level 2 requirements of the Intercollegiate Document when taken alongside our online Introduction to Adult/Child Protection training course. Both courses take between 1.5-2 hours each to complete, and each course is equivalent to three hours of verifiable CPD under the General Dental Council Lifelong Learning Scheme.

You will receive a certificate valid for two years upon successful completion of the course.

Can I take online safeguarding training courses?

Rather than sitting on a waiting list for face-to-face training, or having to close the practice for a staff training day, online safeguarding courses offer a unique flexibility that many dental teams prefer. This is the reason thousands of practices have migrated to online learning in recent years.

The Intercollegiate Document states that

It is vital to remember that safeguarding training should be part of ongoing CPD within your dental practice.

A valid training certificate is an absolute requirement, but the topic of safeguarding should be discussed frequently within your teams, and all staff should continue to engage with the subject of safeguarding beyond simply completing a training course.

This applies to all members of staff, whether they work directly with children or not.

As a dental practice, you are in prime position to be able to spot signs and indicators of abuse, whether they are noticed in the waiting room or the surgery – so every member of your team should have good knowledge of how to deal with any concerns, and this should be as up-to-date as possible.

Please remember that training alone cannot enable an organisation to meet all of its safeguarding responsibilities, or all the safeguarding requirements of bodies such as Ofsted and CQC. Training is an **essential** element of a wider approach to safeguarding, which must also include appropriate policies, practices and organisational culture.

‘A VALID TRAINING CERTIFICATE IS AN

ABSOLUTE REQUIREMENT, BUT THE TOPIC

OF SAFEGUARDING SHOULD BE

DISCUSSED FREQUENTLY WITHIN YOUR TEAMS’

online training courses are appropriate for Levels 1 and 2, but that those requiring Levels 3 and above can use online training as preparation for reflective team-based learning only. So, if you are a dental professional who only requires Level 1 or Level 2 training, it is perfectly acceptable for you to complete an online training course – providing that it is certifiable, and that it makes explicit reference to the Intercollegiate Document safeguarding levels.

How often do I have to complete safeguarding training?

While the Intercollegiate Document states that staff should receive training every three years as a minimum, at the Child Protection Company, we recommend you complete a training course at least bi-annually – this is why all our training certificates are valid for two years.

1. Department for Education. *Working together to safeguard children*. 26 March 2015, updated 16 February 2017. Available at: <https://www.gov.uk/government/publications/working-together-to-safeguard-children--2> (accessed November 2017).
2. Royal College of Paediatrics and Child Health on behalf of contributing organisations. *Safeguarding children and young people: roles and competences for health care staff*. Intercollegiate Document. Third edition: March 2014. Available at: https://my.rcn.org.uk/__data/assets/pdf_file/0008/474587/Safeguarding_Children_-_Roles_and_Competences_for_Healthcare_Staff_02_0....pdf (accessed November 2017).

A version of this article was first published in Dental Nursing.

Special offer for BDJ Team readers

Until Wednesday 31 January 2018, BDJ Team readers can save 10% on all purchases of the Child Protection Company's online Introduction to Adult/Child Protection and Further Adult/Child Protection training courses. Simply visit www.childprotectioncompany.com, select the courses you would like under 'Training', 'Dental', and add them to your basket, then quote the code BDJTeam10 when prompted at the checkout.

For more information about safeguarding training for your dental practice, the friendly customer service team at the Child Protection Company are happy to assist any time. Call 01327 552030 or email help@childprotectioncompany.com.

Read more on safeguarding

- What is safeguarding? <https://www.nature.com/articles/bdjteam201778>
- Elder abuse and the dental team <https://www.nature.com/articles/bdjteam201664>
- Why are vulnerable children not brought to their dental appointments? <https://www.nature.com/articles/bdjteam2016156>
- Child protection: FGM <https://www.nature.com/articles/bdjteam201681>
- Child Protection and the Dental Team CPD: An introduction to safeguarding children in dental practice (BDA course) <https://cpd.bda.org/course/info.php?id=53> (three hours of verifiable CPD)

Is your practice owner a BDA Expert member? Expert members receive two free Child Protection Company courses which they can allocate to anyone within their practice.

bdjteam201811



Oral manifestations of systemic disease

©corbac40/Stock/Getty Images Plus

S. R. Porter,¹ V. Mercadente² and S. Fedele³ provide a succinct review of oral mucosal and salivary gland disorders that may arise as a consequence of systemic disease.

While the majority of disorders of the mouth are centred upon the direct action of plaque, the oral tissues can be subject to change or damage as a consequence of disease that predominantly affects other body systems. Such oral manifestations of systemic disease can be highly variable in both frequency and presentation. As lifespan increases and medical care becomes ever more complex and effective it is likely that the numbers of individuals with oral manifestations of systemic disease will continue to rise. This article provides a succinct review of oral manifestations of systemic disease. It focuses upon oral mucosal and salivary gland disorders that may arise as a consequence of systemic disease.

Disorders of almost any body system can adversely impact upon the mouth. Oral manifestations may be: 1) the first, only or most severe feature of systemic disease; 2) the principle

focus of therapy; and/or 3) the dominant cause of a lessening of the affected person's quality of life. The oral features that an oral healthcare provider may witness will often be dependent upon the nature of their clinical practice. For example, specialists of paediatric dentistry and orthodontics are likely to encounter the oral features of patients with congenital disease while those specialties allied to disease of adulthood may see manifestations of infectious, immunologically-mediated or malignant disease. The present article aims to provide a succinct review of the oral manifestations of systemic disease of patients likely to attend oral medicine services. The review will focus upon disorders affecting the oral mucosa and salivary glands – as these are tissues of greatest interest to practitioners of oral medicine. Although systemic disease relevant to oral medicine can impact upon the teeth and periodontal tissues or cause altered orofacial sensory or motor function these fall out of the scope of the present review.

ORAL MUCOSAL MANIFESTATIONS

The oral mucosa is perhaps the most likely oral tissue to be compromised by acquired systemic disease. The following sections will focus upon ulceration and white lesions of the oral mucosa – as these are the most likely abnormal signs that will be observed by oral healthcare providers.

Oral ulceration

A plethora of local and systemic disorders can give rise to ulceration of the oral mucosa (Table 1).

Solitary ulcers

Longstanding solitary oral mucosal ulceration should always initially be considered to reflect repeated local trauma or malignancy (usually oral squamous cell carcinoma [OSCC; Fig. 1]). Of course many other disorders that give rise to oral ulceration may initially manifest as single ulcers but over time they evolve into more extensive disease. Local oral mucosal trauma in relation to systemic disease can arise as a consequence of physical, for example, movement disorders,¹ or chemical causes, for example, the now rare instances of placing acidic aspirin at sites of oral pain, and the very rare examples of deliberate self-harm by swallowing caustic agents.²

¹Institute Director and Professor of Oral Medicine, UCL Eastman Dental Institute; ²Research Clinician, UCL Eastman Dental Institute; ³Professor of Oral Medicine, UCL Eastman Dental Institute and Oral Theme, UCL NIHR Biomedical Research Centre

Other rare causes of traumatic ulceration could be due to reduced pain and/or touch sensation as might occur in trigeminal neuropathy secondary to metastatic deposits in the mandible or less commonly maxilla, multiple sclerosis, connective tissue disease (for example, scleroderma), diabetes mellitus or drug therapy (for example, with anti-malarials and some chemotherapy regimens). In most instances of suspected traumatic ulceration there will be an identifiable local and/or systemic cause, the ulcers will not be causing notable tissue destruction and the surrounding oral mucosa will be normal in appearance.

Malignancy of the mouth is typically OSCC related to lifestyle factors (tobacco, alcohol, some betel nut preparations and Human papillomavirus oncogenic types),³ however, rare congenital disorders such as dyskeratosis congenita,⁴ Fanconi anaemia,⁵ as well as the acquired diseases oral lichen planus,⁶ possibly scleroderma⁷ and syphilis⁸ are risk factors for the development of this malignancy. In contrast to traumatic ulceration OSCC does not have any identifiable local cause, may cause local destruction and have abnormal surrounding mucosa (eg speckling). Oral squamous cell carcinoma, and indeed most malignancies of the mouth, may just appear plain odd.

Other malignancies related to systemic disease include several types of non-Hodgkin's lymphoma (NHL) and Kaposi's sarcoma (KS). Non-Hodgkin's lymphoma usually presents as a mass or area of destructive ulceration of the pharynx, palate or gingivae, sometimes being driven by a background of immunodeficiency (for example, HIV disease, iatrogenic immunosuppression).⁹ Some types of oral NHL are almost specific for certain situations, for example, plasmablastic lymphoma tends to be associated with HIV disease,^{10,11} or may arise without obvious underlying cause, for example, Natural Killer T cell lymphoma (NKTCL).¹² Oral KS tends to arise on the palate and/or gingivae, is blue, red or purple and does not blanch with local pressure. Prior to the advent of anti-retroviral therapy (ART) KS was the most common oral malignancy of HIV disease, but as the numbers of patients receiving this therapy have climbed there has been a substantial fall in the prevalence of this oral tumour.¹³ Nevertheless, oral KS can be the first clinical manifestation of unknown (and advanced) HIV disease and can arise in patients receiving long-term immunosuppressive therapy. Metastatic disease generally does not give rise to ulcers of the mouth, although as noted above can manifest within the mandible as a swelling and/ or paraesthesia/anaesthesia.¹⁴ Other rare causes of solitary ulceration of possible systemic origin include syphilis

Table 1 Systemic causes of oral mucosal or gingival ulceration

Trauma	Physical, chemical, radiation, thermal
Disorders causing aphthous-like ulceration	Behçet disease PFAPA syndrome, other autoinflammatory disorders Others
Infections	Primary or recurrent herpes simplex virus infection Varicella-zoster virus Epstein-Barr virus Cytomegalovirus (very rare) Coxsackie virus Echovirus <i>Treponema pallidum</i> <i>Mycobacterium tuberculosis</i> (and rarely mycobacteria other than tuberculosis [MOTT]) Gram-negative infections (rare) Chronic mucocutaneous candidiasis
Dermatoses	Lichen planus Mucous membrane pemphigoid (and occasionally other types) Pemphigus vulgaris (and occasionally other types) Dermatitis herpetiformis Linear IgA disease Epidermolysis bullosa acquisita Erythema multiforme
Hematologic disorders	Neutropenia(s) Non-solid haematological malignancies: leukaemia(s) and myeloproliferative disorders Solid haematological malignancy: non-Hodgkin's lymphoma Haematinic deficiencies Others
Gastrointestinal disorders	Crohn's disease and related disorders Ulcerative colitis
Drugs	Cytotoxics and very many others
Malignancy	Kaposi's sarcoma non-Hodgkin lymphoma Others
Others	Hypoplasminogenaemia



Fig. 1 Oral squamous cell carcinoma - probably one of the most significant causes of solitary ulceration of the oral mucosa



Fig. 2 Recurrent aphthous stomatitis - episodic superficial oral mucosal ulceration in otherwise well children and adults

(eg tertiary disease), primary or secondary infection of *Mycobacteria tuberculosis* or mycobacteria other than tuberculosis (MOTT)^{15,16} and systemic mycoses (eg mucormycosis, aspergillosis, histoplasmosis and paracoccidioidomycosis).¹⁷ Solitary ulceration secondary to neutropenias are also possible,

although extensive ulceration might be more likely than single ulcers.¹⁸

Multiple ulcers

Recurrent aphthous stomatitis is the most common cause of multiple superficial ovoid ulcers of the oral mucosa,¹⁹ but this is

Table 2 Oral mucosal white patches associated with systemic disease

Non-adherent	Pseudomembranous candidosis (thrush) Other mycoses Food debris Furred tongue Drug-associated necrotic debris (for example, aspirin, cocaine)
Adherent	Papillomas (warts – these are rarely of sexual origin) White sponge naevus Geographic tongue (erythema migrans – sometimes associated with type I hypersensitivity disorders or psoriasis) Frictional keratosis (for example, as a consequence of abnormal orofacial movement) Lichen planus Lupus disorders Oral hairy leukoplakia Chronic mucocutaneous candidiasis Others (for example, the rare dyskeratosis congenita)

characterised by the patients being otherwise well (Fig. 2). The multisystem inflammatory disorder Behcet's disease (BD) gives rise to near identical oral ulcers as RAS but also comprises genital ulceration, uveitis, erythema nodosum and other cutaneous features, as well as a plethora of other gastrointestinal, urogenital, neural, musculoskeletal, cutaneous and vascular



Fig. 3 Superficial ulceration of pemphigus vulgaris - the most common type of pemphigus to affect the oral mucosae or gingivae



Fig. 4 Pseudomembranous candidiasis (thrush) of the oral mucosa

features.²⁰ The uncommon autoinflammatory syndrome of periodic fever, aphthous ulceration, pharyngitis and adenitis (PFAPA) that usually arises in pre-pubertal children gives rise to episodes of superficial aphthous-like ulceration. Unlike RAS this disorder tends to spontaneously remit in the teenage years.²¹ Other autoinflammatory diseases (that is, periodic fevers) such as familial Mediterranean fever (FMF) may also sometimes give rise to superficial oral ulceration.²²

Ulceration similar to RAS, but without the same periodicity, can be a feature of anaemia of almost any cause. An important diagnostic rule is to always investigate for anaemia as being the cause of sudden onset superficial ulceration in an adult who does not have a history of RAS and has no signs of common bullous disease (see later in article).²³

Several mucocutaneous disorders give rise to multiple areas of oral ulceration, lichen planus being without doubt the most common to do so. The ulceration of oral LP (OLP) is usually bilateral, has a background of different white patches and arises bilaterally on the buccal, lingual and/or gingival surfaces. Up to 40% of patients with OLP will also have cutaneous or other mucosal features of LP.^{24,25} Lichen planus usually arises without identifiable cause although may rarely be secondary to medication – for example, β blockers, sulphonylureas, some anti-malarials (eg, hydroxychloroquine for the management of lupus disease) and a spectrum of other agents – when disease is termed lichenoid drug reaction (LDR), or is a manifestation of graft versus host disease (GvHD).²⁴ Associations between LP and HCV disease are tenuous. Regardless of any association with systemic disorders or therapy, OLP-like disease is considered potentially malignant, this cancer risk being independent of known causative factors of OSCC or therapy of OLP.⁶ Lupus disease (for example, discoid and systemic) may give rise to oral mucosal

and/or gingival features similar to those of OLP, although lesions of lupus may not be bilateral and may be more likely to affect the palate than OLP. Sun-ray pattern lesions that comprise a central area of erosion or ulceration from which white linear areas radiate have been described on the oral mucosa of patients with lupus disease.^{26,27}

The pemphigoid group of immunobullous disorders can give rise to bullae and/or ulceration of the palatal, buccal or lingual surfaces.²⁸ Desquamative gingivitis is common.²⁹ Intact blood or fluid-filled bullae may be observed in patients with pemphigoid disease as the immune-mediated attack is targeting antigens of the basement membrane zone (BMZ).³⁰ Depending upon the type of pemphigoid, patients may have blistering and/or ulceration of other mucocutaneous sites with oral involvement being most likely with mucous membrane pemphigoid.³¹ The IgA dermatoses (for example, dermatitis herpetiformis [DH; often associated with gluten sensitive enteropathy] and linear IgA disease) can give rise to oral features similar to those of pemphigoid.^{32–35} Dapsone, often employed for the treatment of DH (and sometimes for pemphigoid) may rarely cause blue discoloration of the tongue secondary to methaemoglobinaemia.

The pemphigus group, in particular pemphigus vulgaris (PV), characterised by the generation of a series of anti-epithelial antibodies, gives rise to highly superficial ragged-bordered ulcers of the palatal, lingual and buccal mucosa as well as desquamative gingivitis (Fig. 3). The mouth is the first site of involvement of PV in about 50% of affected individuals and without therapy perhaps 95% of patients will develop oral lesions.^{36,37}

Of concern has been the realisation that bullous disease can arise on a background of systemic malignancy, this group of disorders being termed paraneoplastic pemphigus (PNP; sometimes also termed paraneoplastic autoimmune multi-organ syndrome [PAMS]). About two thirds of the associated cancers are haematological (for example, non-Hodgkin's lymphoma, chronic lymphocytic leukaemia and Castleman's disease) although PNP has been observed in association with sarcomas, thymoma, lung cancer and OSCC. The mouth, pharynx and larynx are usually the first sites of involvement, although the conjunctivae and genitals may also be affected. The oral features are similar to those of PV, although there can be notable labial involvement. Desquamative gingivitis presumably occurs. Confusingly, oral lichen planus-like features can sometimes arise in PAMS. Of concern PAMS can cause bronchiolitis obliterans and early death. The

Table 3 Other oral mucosal manifestations of systemic disease

Swellings	Granulomatous disease (for example, Crohns disease; sarcoidosis) <ul style="list-style-type: none"> • Cobblestoning • Mucosal tags and/or nodules • 'Stag horn' type swellings of the floor of mouth • Swelling of the lips and/or face (angioedema) Tuberos sclerosis Sturge Weber syndrome Neurofibromatosis type 1 Cowden's syndrome Others
Pigmentation (usually hypermelanotic)	Physiological (that is, racially based) Neurofibromatosis type 1 Albright syndrome Laugier-Hunziker syndrome Haemochromatosis Incontinentia pigmenti Metastatic malignant melanoma Hypoadrenocortical deficiency Infection of the adrenal cortex (eg, TB, CMV, others) Ectopic ACTH production (for example, with some lung malignancies) Peutz-Jegher's syndrome (usually per-oral rather than oral hyperpigmented areas) Drugs (rare, but many can do this – for example, buspulfan, minocycline, zidovudine, others) (other types of pigmentation include central cyanosis (blue), Kaposi's sarcoma [blue, red purple] and congenital bilirubinaemias [brown – but usually on the gingivae only].)

variable presentation of PAMS reflects the wide range of autoantibodies with different epithelial targets that may be generated.³⁸ Finally, several groups of drugs may cause pemphigus-like disease, for example angiotensin converting enzyme (ACE) inhibitors.³⁹

Erythema multiforme (EM) can often give rise to areas of irregular superficial ulceration of the mouth particularly the anterior oral mucosa. There can also be areas of non-specific erythema, occasional vesicles or blisters or desquamative-like gingivitis. Target-like lesions may very rarely arise on the oral mucosa. This group of disorders includes EM minor, EM major, Stevens Johnson syndrome and toxic epidermal necrolysis syndrome (TENS) that often, but not always, are secondary to an increasingly wide range of medications. The risk of EM type disease clearly increases with the numbers of different drugs that a patient



Fig. 5 Oral dryness secondary to Sjögren's syndrome - this tongue is notably fissured and also has signs of mild oral lichen planus

THE MOST COMMON CAUSES OF WHITE PATCHES OF THE MOUTH ARE LOCAL PHYSICAL TRAUMA, ORAL LICHEN PLANUS, HYPERKERATOSIS, EPITHELIAL DYSPLASIA OR NEOPLASIA.'

receives – but in some instances EM disease can arise in the absence of drug therapy.⁴⁰

White patches

White patches of the oral mucosa can be categorised clinically into adherent (that is, do not easily wipe off) and non-adherent. The range of systemic disorders that can give rise to oral mucosal (and sometimes gingival) white patches is summarised in Table 2.

Non-adherent white patches

Pseudomembranous candidiasis (thrush) is a non-adherent white or cream coloured non-adherent pseudomembrane that tends to arise on the posterior palate or pharynx, although when disease is severe almost any oral surface can be affected (Fig. 4). Thrush is usually painless and typically reflects present or recent therapy with broad spectrum antibiotics, corticosteroids or other immunosuppressants, other immunodeficiencies or long standing oral dryness (for example, medication induced or Sjögren's syndrome). Thrush is perhaps most commonly observed in patients receiving long-term corticosteroid inhaler therapy (for

example, for the management of asthma). While *Candida albicans* is the most common species associated with oral thrush, several other types may also give rise to this clinical feature, some of which can be particularly insensitive or indeed resistant to antifungal therapy.^{41,42}

Adherent white patches

The most common causes of white patches of the mouth are local physical trauma, oral lichen planus (discussed earlier), hyperkeratosis of unknown cause, epithelial dysplasia or neoplasia. Some of these can arise in association with systemic disease (for example, traumatic keratosis secondary to cerebral palsy or oral lichen planus due to medication) and white patches of the oral mucosa and to a lesser extent the gingivae may be a significant feature of systemic disease. Perhaps the most important of these is chronic mucocutaneous candidiasis (CMC), a group of often congenitally driven disorders characterised by recurrent mucocutaneous candidal infection.⁴³ In CMC

the complete spectrum of presentations of oral candidal infection can occur (for example, pseudomembranous, erythematous, chronic hyperplastic). Patients with autoimmune polyendocrinopathy candidiasis ectodermal dystrophy (APECED) not only have chronic candidal infection but may have diabetes mellitus (which presumably will increase the risk or severity of periodontitis), enamel hypocalcification (secondary to hypoparathyroidism) and hypermelanotic pigmentation of the oral mucosa (secondary to autoimmune-driven destruction of the adrenal cortex).^{44–47} Late-onset chronic mucocutaneous candidiasis (Good's syndrome) is accompanied by thymoma, myasthenia gravis and bone marrow abnormalities and thus affected individuals may have abnormal movement of the eyes, mouth and/or face.⁴⁸ Chronic mucocutaneous candidiasis may be considered to be a rare risk factor for OSCC.⁴⁹

There are many other potential oral mucosal manifestations of systemic disease, as summarised in Table 3. Perhaps the most notable of these is Addisonian pigmentation. This is actually very rare but manifests as areas

Table 4 Non-neoplastic systemic causes of salivary gland swelling

Unilateral	Bilateral
Acute suppurative sialadenitis	Mumps
Recurrent parotitis of childhood	HIV salivary gland disease (and related disorders)
Sialolithiasis and other causes of ductal obstruction	HCV sialadenitis
Sjögren's syndrome (and associated non-Hodgkin's lymphoma)	Sjögren's syndrome (and rarely bilateral non-Hodgkin's lymphoma)
IgG4 related disease	IgG4 related disease
Sarcoidosis	Sarcoidosis
Chronic non-specific sialadenitis	Sialosis
Xanthogranulomatous sialadenitis	Pneumoparotitis
Amyloidosis	Iodine containing contrast media and radioactive iodine
Others	Drugs (rare)
	Others

'SALIVARY GLAND DISEASE ASSOCIATED WITH HIV INFECTION TENDS TO ARISE IN LATE ADVANCED DISEASE ALTHOUGH IT MAY RARELY BE THE FIRST MANIFESTATION OF HIV INFECTION'

of hypermelanotic pigmentation of the buccal mucosae. A similar appearance (together with palatal pigmentation) can arise with some small cell carcinomas of the lung.

SALIVARY GLAND MANIFESTATIONS

Disease of the salivary glands broadly manifests as local swelling and/or oral dryness (the symptom of xerostomia). The disorders likely to give rise to salivary gland manifestations are summarised in Tables 4 and 5.

Salivary gland swelling

Mucoceles of the minor salivary glands of the lower lip and sialolithiasis of the submandibular gland are probably the most common causes of swelling of the salivary glands. Mucoceles have no association with systemic disease and ranulas, swellings of the submandibular and/or sublingual glands akin to that of mucoceles, do not seem to have any consistent association with systemic disease, although have been observed in patients receiving ART. Sialolithiasis tends to arise *de novo* but a number of systemic disorders

or therapies have been linked to this disorder including diabetes mellitus, hypertension and/or chronic liver disease, nephrolithiasis, hyperparathyroid disease and therapy with the anti-HIV agent atazanavir.⁵⁰

Acute suppurative sialadenitis that usually manifests as a painful swelling of one parotid gland is typically secondary to longstanding oral dryness such as Sjögren's syndrome or radiotherapy-associated salivary gland disease. However, neonatal disease has been reported in association with prematurity, orogastric feeding and/or immunodeficiency. In adults links with systemic disease have included diabetes mellitus, HIV disease and a plethora of surgical interventions, as well as the very rare coprophagia (the consumption of faeces).

Mumps will often cause short-term salivary gland swelling although, hopefully, the return of the high compliance with appropriate vaccination will lessen the frequency of this and the much more significant consequences of this disorder. Hepatitis C virus (HCV) infection can cause both salivary gland enlargement (typically

the parotid glands) and reduced salivary output and importantly there is a risk of NHL of salivary glands.⁵⁰

Salivary gland disease associated with HIV infection tends to arise in late advanced disease although it may rarely be the first manifestation of a previously unknown HIV infection. There can be swelling and/or xerostomia, the former being most common in the parotid glands. Within the gland there is inflammation (sialadenitis) that is being driven by infection with BK polyomavirus (BKPyV).^{51,52} Multicystic lymphoepithelial lesions, sometimes termed cystic lymphoid hyperplasia (CLH) or benign lymphoepithelial lesion (BLEL) or benign lymphoepithelial cysts (BLEC), may also occur in 6% of adults and 10% of children infected with HIV. Transformation to non-Hodgkin's lymphoma is a rare complication of CLH. Other causes of salivary swellings of patients with HIV disease include intraglandular lymphadenopathy, Kaposi's sarcoma, NHL and acute suppurative sialadenitis. As noted above sialolithiasis possibly secondary to ART has been documented and some HIV protease inhibitors can cause salivary gland enlargement of unknown cause.

Salivary gland swelling (often only of the submandibular glands), sometimes with xerostomia, can arise in IgG4-related disease. This is a rare fibroinflammatory disorder characterised by elevated serum levels of IgG4 and multi-organ inflammation (lacrimal glands, pituitary gland, thyroid, pancreas, biliary tract, lungs, prostate gland and retroperitoneal cavity). The disease has predominantly been described in Asian patients (particularly from Japan) but affected individuals have been reported in the Western World. In the past the features were termed 'Mikulicz' disease 'Kuttner tumour' or 'chronic sclerosing sialadenitis'.^{50,53}

Sialosis (sometimes termed sialoadenosis) is an uncommon non-neoplastic and non-inflammatory disorder possibly associated with some systemic disorders that give rise to bilateral non-painful enlargement of the major salivary glands – typically the parotids. Xerostomia is not a common or dominant accompanying symptom. The precise cause is unknown although it may reflect a neuropathy by which unopposed sympathetic drive causes an increase in protein content within the acinar cells.⁵⁴ This would perhaps explain the association of sialosis with diabetes mellitus and perhaps hypothyroidism, malnutrition, alcoholism and other causes of hepatic cirrhosis. Sialosis has also been observed in bulimia nervosa, the degree of salivary gland enlargement possibly correlating with the frequency of bulimic symptoms and with levels of serum amylase.

Table 5 Other oral signs and symptoms of systemic disease relevant to oral medicine

Oral pain	Any disorder that increases the risk of painful dental caries Dental pain secondary to sickle cell disease (very rare) Trigeminal neuralgia-like disease with: <ul style="list-style-type: none"> • Multiple sclerosis • Systemic lupus erythematosus • Osteopetrosis • Infection/tumours around the central parts of the trigeminal nerve Glossopharyngeal neuralgia-like disease with: <ul style="list-style-type: none"> • Multiple sclerosis • Infection/tumours around the central or peripheral parts of the glossopharyngeal nerve. Post-herpetic neuralgia (rare in the mouth) Giant cell arteritis Migrainous disorders Temporomandibular disorder (TMD) – like features with: <ul style="list-style-type: none"> • Ehler Danlos syndrome Persistent idiopathic facial pain (sometimes termed idiopathic facial pain) Others	
Loss of sensation (trigeminal neuropathy)	Metastatic deposits Diabetes mellitus (diabetic neuropathy) Connective tissue disease (eg, scleroderma, Sjogren's syndrome, others) Sickle cell disease Familial dysautonomia Drugs (eg, anti-malarials) Others	
Abnormal orofacial movement	Facial weakness (usually unilateral)	Upper motor nerve: <ul style="list-style-type: none"> • Stroke • CNS malignancy • Others Lower motor nerve: <ul style="list-style-type: none"> • Lyme disease (<i>Bartonella burgdoferi</i>) • Meningioma/neurofibroma/infections within the internal auditory meatus • Middle ear/temporal bone malignancy/destruction • Tumours/infection in other parts of the nerve
	Orofacial dyskinesias	Trigeminal neuralgia-like disease (as above) Parkinson's disease Tardive dyskinesia (eg, secondary to some anti-psychotic agents). Note that metronidazole can cause tardive and other dyskinesias of the face Rabbit syndrome (secondary to drugs) Chin tremor (eg, with paroxetine)
	Reduced/altered tongue movement	Bulbar palsy (ie, lower motor) – malignancy/infection/trauma of lower CNS/base of skull/tongue Pseudobulbar palsy (ie, upper motor) – malignancy/infection of CNS, some types of motor neurone disease (also described in variant Creutzfeldt Jakob disease)
Oral malodour	Upper respiratory tract infection/malignancy Pulmonary TB, abscesses, bronchiectasis, malignancy Occasionally <i>H. pylori</i> -associated gastric erosion Trimethylaminuria Hypermethioninaemia Diabetic ketoacidosis End stage renal failure End stage hepatic failure Halitophobia/pseudohalitosi/olfactory reference syndrome (symptoms but no clinically detectable evidence of altered breath smell)	

A wide range of drugs can cause salivary gland enlargement. Transient and mild acute sialadenitis (sometimes termed 'iodide mumps') can arise in response to iodine based contrast media (for example, for percutaneous coronary interventions).^{55–58} Similarly radioactive iodine, used for the treatment of thyroid cancer, can cause salivary gland swelling and xerostomia that may arise within 24 hours of therapy and persist for a few weeks. Other agents that may cause salivary gland enlargement include l-asparaginase, clozapine, phenylbutazone, methylidopa, interferon alpha, oxyphenbutazone, ramipril, trimethoprim/sulfamethoxazole,

nifedipine, nifedipine, chlormethiazole, methimazole, naproxen, nitrofurantoin, sulfadiazine, captopril, cytarabine, cimetidine, ranitidine, and thioridazine.⁵⁹

Oral dryness

The symptom of oral dryness does not always accord with loss of salivary gland function, indeed many individuals report some degree of usually transient or mild oral dryness without objective evidence of reduced salivary gland function. Reduced salivary function gives rise to dysarthria, dysphagia, dysgeusia, some mucosal soreness, an increased

liability to caries, gingivitis (but perhaps not periodontitis), candida infection (for example, pseudomembranous, erythematous and angular chielitis), acute suppurative sialadenitis and reduced retention of upper full dentures. It can thus greatly lessen quality of life.⁵⁰

The most common cause of persistent oral dryness is drug therapy – with late-aged patients receiving polypharmacy being at greatest risk of this problem (Box 1). Medication-related xerostomia reflects anti-cholinergic and/or sympathomimetic actions, hence the drugs most commonly implicated in xerostomia are tricyclic antidepressants, benzodiazepines,

Box 1 Systemic causes of longstanding oral dryness

Drugs (many)
 Radiotherapy of the head and neck
 Sjogren's syndrome and related disorders
 Chronic graft versus host disease
 IgG4 related disease
 Sarcoidosis
 Salivary gland agenesis
 HIV salivary gland disease
 HCV sialadenitis
 Others (for example, longstanding anxiety, depression)

atropinics, beta-blockers and anti-histamines. Morphine-derived agents cause oral dryness and while often promoted as having less anticholinergic actions than the tricyclics, the selective serotonin reuptake inhibitors (SSRIs) still cause some dry mouth. Some other newer drug therapies including omeprazole, anti-HIV protease inhibitors, the nucleoside analogue HIV reverse transcriptase inhibitor didanosine,

phenomena, while those with secondary Sjögren's syndrome may also have oral manifestations of any accompanying connective tissue disease.⁶¹

The oral features of primary or secondary SS are those of oral dryness (as described previously) and salivary gland enlargement due to the inflammation of the actual disease, episodes of acute suppurative sialadenitis and NHL. With regard to this last feature it is important to appreciate that SS is a potentially malignant disorder having a 4.3% risk of malignancy with a standardised incident rate of 18.9. The tumours are usually low grade marginal zone lymphoma (MALT), but can also be follicle centre, diffuse B cell lymphoma (DBCL) or lymphoplasmacytoid lymphoma.^{62,63}

OTHER ORAL MANIFESTATIONS

The present article has focused upon the impact of systemic disease on the oral mucosa and salivary glands but a very wide range of other symptoms and/or signs of systemic disease can arise in the mouth or adjacent face as a consequence of disorders of non-oral structures (summarised briefly in Table 5).

'XEROSTOMIA IS THE MOST COMMON**PERSISTENT SIDE EFFECT OF RADIOTHERAPY****(RT) OF THE HEAD AND NECK'**

tropium chloride, elliptinium, and new generation antihistamines may also cause drug-induced xerostomia.

Xerostomia is the most common persistent adverse side effect of radiotherapy (RT) of the head and neck, affecting up to 85% of patients.⁶⁰ The prevalence of RT-induced xerostomia varies with respect to RT field, dose, regimen, and technique. Although the introduction of intensity modulated RT has led to a significant reduction in the frequency and severity of this iatrogenic problem, many patients still experience the consequences of irreversible salivary gland dysfunction as a fall in salivary outflow and altered salivary content.

Oral dryness is a dominant symptom of Sjögren's syndrome (Fig. 5). This disorder is classified as primary disease in which there are symptoms and signs of ocular and oral dryness and secondary Sjögren's syndrome in which there is also a connective tissue disorder – most frequently rheumatoid arthritis or systemic lupus erythematosus. However, patients with primary Sjögren's syndrome have a spectrum of other systemic, and often autoimmune

CONCLUSION

Oral features of systemic disease can be helpful in the diagnosis and management of the underlying disorder – and indeed the oral symptoms may be those that most lessen the quality of life of affected individuals. The providers of primary oral healthcare have an essential role in the management of patients who may have oral consequences of systemic disease, as they are often likely to be the first clinicians to observe such abnormalities. They may not know exactly what the disease is but timely referral of patients to specialist oral medicine units will ensure that any potential oral manifestation of systemic disease is managed quickly and appropriately to improve the patient's quality of life. A simple rule to perhaps apply is: 'it looks different thus I will refer the patient to someone who may know what to do.'

1. Compilato D, Corsello G, Campisi G. An unusual traumatic ulceration of the tongue. *J Paediatr Child Health* 2012; **48**: 1104–1105.
2. Gilveti C, Porter S R, Fedele S. Traumatic chemical oral ulceration: a case report and review

of the literature. *Br Dent J* 2010; **208**: 297–300.

3. Radoi L, Luce D. A review of risk factors for oral cavity cancer: the importance of a standardized case definition. *Community Dent Oral Epidemiol* 2013; **41**: 97–109.
4. Ray J G, Swain N, Ghosh R, Richa, Pattanayak Mohanty S. Dyskeratosis congenita with malignant transformation. *BMJ Case Rep* 2011; **2011**: DOI: 10.1136/bcr.03.2010.2848.
5. Wong W M, Parvathaneni U, Jewell P D *et al*. Squamous cell carcinoma of the oral tongue in a patient with Fanconi anemia treated with radiotherapy and concurrent cetuximab: a case report and review of the literature. *Head Neck* 2013; **35**: E292–298.
6. Fitzpatrick S G, Hirsch S A, Gordon S C. The malignant transformation of oral lichen planus and oral lichenoid lesions: a systematic review. *J Am Dent Assoc* 2014; **145**: 45–56.
7. Kuo C F, Luo S F, Yu K H *et al*. Cancer risk among patients with systemic sclerosis: a nationwide population study in Taiwan. *Scand J Rheumatol* 2012; **41**: 44–49.
8. Michalek A M, Mahoney M C, McLaughlin C C, Murphy D, Metzger B B. Historical and contemporary correlates of syphilis and cancer. *Int J Epidemiol* 1994; **23**: 381–385.
9. Triantafyllidou K, Dimitrakopoulos J, Iordanidis F, Gkagkalis A. Extranodal non-hodgkin lymphomas of the oral cavity and maxillofacial region: a clinical study of 58 cases and review of the literature. *J Oral Maxillofac Surg* 2012; **70**: 2776–2785
10. Porter S R, Diz Dios P, Kumar N, Stock C, Barrett A W, Scully C. Oral plasmablastic lymphoma in previously undiagnosed HIV disease. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1999; **87**: 730–734.
11. Castillo J J, Bibas M, Miranda R N. The biology and treatment of plasmablastic lymphoma. *Blood* 2015; **125**: 2323–2330.
12. Al-Hakeem D A, Fedele S, Carlos R, Porter S. Extranodal NK/T-cell lymphoma, nasal type. *Oral Oncol* 2007; **43**: 4–14.
13. Patton L L. Oral lesions associated with human immunodeficiency virus disease. *Dent Clin North Am* 2013; **57**: 673–698.
14. Rao R S, Patil S, Sanketh D, Amrutha N. Metastatic tumors of the oral cavity. *J Contemp Dent Pract* 2014; **15**: 263–271.
15. Ilyas S E, Chen F F, Hodgson T A, Speight P M, Lacey C J, Porter S R. Labial tuberculosis: a unique cause of lip swelling complicating HIV infection. *HIV Med* 2002; **3**: 283–286.
16. Aoun N, El-Hajj G, El Toum S. Oral ulcer: an uncommon site in primary tuberculosis. *Aust Dent J* 2015; **60**: 119–122.
17. Iatta R, Napoli C, Borghi E, Montagna M T. Rare mycoses of the oral cavity: a literature epidemiologic review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009; **108**: 647–655.

18. Porter S R, Scully C, Standen G R. Autoimmune neutropenia manifesting as recurrent oral ulceration. *Oral Surg Oral Med Oral Pathol* 1994; **78**: 178–180.
19. Jurge S, Kuffer R, Scully C, Porter S R. Mucosal disease series. Number VI. Recurrent aphthous stomatitis. *Oral Dis* 2006; **12**: 1–21.
20. Al-Otaibi L M, Porter S R, Poate T W. Behçet's disease: a review. *J Dent Res* 2005; **84**: 209–222.
21. Stojanov S, Lapidus S, Chitkara P et al. Periodic fever, aphthous stomatitis, pharyngitis, and adenitis (PFAPA) is a disorder of innate immunity and Th1 activation responsive to IL1 blockade. *Proc Natl Acad Sci USA* 2011; **108**: 7148–7153.
22. Scully C, Hodgson T, Lachmann H. Auto-inflammatory syndromes and oral health. *Oral Dis* 2008; **14**: 690–699.
23. Scully C, Porter S. Orofacial disease: update for the dental clinical team: 2. Ulcers, erosions and other causes of sore mouth. Part II. *Dent Update* 1999; **26**: 31–39.
24. Ryan K, Hegarty A M, Hodgson T. Aetiology, diagnosis and treatment of oral lichen planus. *Br J Hosp Med (Lond)* 2014; **75**: 492–496.
25. Bidarra M, Buchanan J A, Scully C, Moles D R, Porter S R. Oral lichen planus: a condition with more persistence and extra-oral involvement than suspected? *J Oral Pathol Med* 2008; **37**: 582–586.
26. Lourenço S V, de Carvalho F R, Boggio P et al. Lupus erythematosus: clinical and histopathological study of oral manifestations and immunohistochemical profile of the inflammatory infiltrate. *J Cutan Pathol* 2007; **34**: 558–564.
27. Nico M M, Vilela M A, Rivitti E A, Lourenço S V. Oral lesions in lupus erythematosus: correlation with cutaneous lesions. *Eur J Dermatol* 2008; **18**: 376–381.
28. Xu H H, Werth V P, Parisi E, Sollecito T P. Mucosal membrane pemphigoid. *Dent Clin North Am* 2013; **57**: 611–630.
29. Leao J C, Ingafou M, Khan A, Scully C, Porter S. Desquamative gingivitis: retrospective analysis of disease associations of a large cohort. *Oral Dis* 2008; **14**: 556–560.
30. Chan L S. Ocular and oral mucous membrane pemphigoid (cicatricial pemphigoid). *Clin Dermatol* 2012; **30**: 34–37.
31. Kasperkiewicz M, Zillikens D, Schmidt E. Pemphigoid diseases: pathogenesis, diagnosis, and treatment. *Autoimmunity* 2012; **45**: 55–70.
32. Lähteenoja H, Irjala K, Viander M, Vainio E, Toivanen A, Syrjänen S. Oral mucosa is frequently affected in patients with dermatitis herpetiformis. *Arch Dermatol* 1998; **134**: 756–758.
33. Said S, Golitz L. Vesiculobullous eruptions of the oral cavity. *Otolaryngol Clin North Am* 2011; **44**: 133–160, vi.
34. Dan H, Lu R, Li W, Chen Q, Zeng X. Linear IgA disease limited to the oral mucosa. *J Am Acad Dermatol* 2011; **65**: 677–679.
35. Eguia del Valle A, Aguirre Urizar J M, Martínez Sahuquillo A. Oral manifestations caused by the linear IgA disease. *Med Oral* 2004; **9**: 39–44.
36. Sticherling M, Erfurt-Berge C. Autoimmune blistering diseases of the skin. *Autoimmun Rev* 2012; **11**: 226–230.
37. Santoro F A, Stoopler E T, Werth V P. Pemphigus. *Dent Clin North Am* 2013; **57**: 597–610.
38. Niimi Y, Ohyama B, Di Zenzo G, Calabresi V, Hashimoto T, Kawana S. Paraneoplastic pemphigus presenting as mild cutaneous features of pemphigus foliaceus and lichenoid stomatitis with antidesmoglein 1 antibodies. *Dermatol Res Pract* 2010; **2010**: DOI: 10.1155/2010/931340.
39. Cozzani E, Rosa G M, Drosera M, Intra C, Barsotti A, Parodi A. ACE inhibitors can induce circulating antibodies directed to antigens of the superficial epidermal cells. *Arch Dermatol Res* 2011; **303**: 327–332.
40. Al-Johani K A, Fedele S, Porter S R. Erythema multiforme and related disorders. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2007; **103**: 642–654.
41. Muzyka B C, Epifanio R N. Update on oral fungal infections. *Dent Clin North Am* 2013; **57**: 561–581.
42. Stoopler E T, Sollecito T P. Oral mucosal diseases: evaluation and management. *Med Clin North Am* 2014; **98**: 1323–1352.
43. Lanternier F, Cypowij S, Picard C et al. Primary immunodeficiencies underlying fungal infections. *Curr Opin Pediatr* 2013; **25**: 736–747.
44. Kisand K, Peterson P. Autoimmune polyendocrinopathy candidiasis ectodermal dystrophy and other primary immunodeficiency diseases help to resolve the nature of protective immunity against chronic mucocutaneous candidiasis. *Curr Opin Pediatr* 2013; **25**: 715–721.
45. Lindh E, Brännström J, Jones P et al. Autoimmunity and cystatin SA1 deficiency behind chronic mucocutaneous candidiasis in autoimmune polyendocrine syndrome type 1. *J Autoimmun* 2013; **42**: 1–6.
46. Capalbo D, Improda N, Esposito A et al. Autoimmune polyendocrinopathycandidiasisectodermal dystrophy from the pediatric perspective. *J Endocrinol Invest* 2013; **36**: 903–912.
47. Porter S R, Scully C. Candidiasis endocrinopathy syndrome. *Oral Surg Oral Med Oral Pathol* 1986; **61**: 573–578.
48. Kelesidis T, Yang O. Good's syndrome remains a mystery after 55 years: A systematic review of the scientific evidence. *Clin Immunol* 2010; **135**: 347–363.
49. Shephard M K, Schifter M, Palme C E. Multiple oral squamous cell carcinomas associated with autoimmune polyendocrinopathycandidiasisectodermal dystrophy. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2012; **114**: e36–e42.
50. Porter S R, Mercadante V, Fedele S. Non-neoplastic salivary gland disease. In *Scott-Brown's otorhinolaryngology: head & neck surgery*, 8th edition. London: Hodder Arnold (in press).
51. Jeffers L K, Madden V, Webster-Cyriaque J. BK virus has tropism for human salivary gland cells in vitro: Implications for transmission. *Virology* 2009; **394**: 183–193.
52. Burger-Calderon R, Madden V, Hallett R A, Gingerich A D, Nickeleit V, Webster-Cyriaque J. Replication of oral BK virus in human salivary gland cells. *J Virology* 2014; **88**: 559–573.
53. Mahajan V S, Mattoo H, Deshpande V, Pillai S S, Stone J H. IgG4-related disease. *Ann Rev Pathol* 2014; **9**: 315–347.
54. Deshpande V, Zen Y, Chan J K C et al. Consensus statement on the pathology of IgG4-related disease. *Mod Pathol* 2012; **25**: 1181–1192.
55. Mandel L, Khelemsky R. Asymptomatic bilateral facial swelling. *J Am Dent Assoc* 2012; **143**: 1205–1208.
56. Capoccia L, Sbarigia E, Speziale F. Monolateral sialadenitis following iodinated contrast media administration for carotid artery stenting. *Vascular* 2010; **18**: 34–36.
57. Chau A M T, Suan D. Iodide mumps. *Clinical Imaging* 2013; **37**: 367–368.
58. Shacham Y, Havakuk O, Roth A. A rare case of acute contrast-induced sialadenitis after percutaneous coronary intervention. *Israel Med Assoc J* 2013; **15**: 652–653.
59. Brooks K G, Thompson D F. A review and assessment of drug-induced parotitis. *Ann Pharmacother* 2012; **46**: 1688–1699.
60. Jensen S B, Pedersen A M L, Vissink A et al. A systematic review of salivary gland hypofunction and xerostomia induced by cancer therapies: Prevalence, severity and impact on quality of life. *Support Care Cancer* 2010; **18**: 1039–1060.
61. Konings A W T, Coppes R P, Vissink A. On the mechanism of salivary gland radiosensitivity. *Int J Radiat Oncol Biol Phys* 2005; **62**: 1187–1194.
62. Reksten T R, Jonsson M V. Sjögren's Syndrome: An update on epidemiology and current insights on pathophysiology. *Oral Maxillofac Surg Clin North Am* 2014; **26**: 1–12.
63. Voulgarelis M, Ziakas P D, Papageorgiou A, Baimpa E, Tzioufas A G, Moutsopoulos H M. Prognosis and outcome of non-hodgkin lymphoma in primary Sjögren syndrome. *Medicine* 2012; **91**: 1–9.
64. Routsias J G, Goules J D, Charalampakis G, Tzima S, Papageorgiou A, Voulgarelis M. Malignant lymphoma in primary Sjögren's syndrome: An update on the pathogenesis and treatment. *Semin Arthritis Rheum* 2013; **43**: 178–186.

This article was originally published in the BDJ in Volume 223 issue 9, pages 683-691.

bdjteam201812

Product news

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

SMART TOOTHBRUSH WILL PROVIDE REAL TIME GUIDANCE TO PATIENTS

On 1 November 2017 at an exclusive event in Central London, a revolutionary new dental product was launched to tackle Britain's poor toothbrushing habits. Brushlink is a device that costs less than £30 that will transform any toothbrush into a smart toothbrush.

Brushlink combines a tracking device attached to your toothbrush with a smartphone app. The smartphone app provides the user with real time brushing guidance and performance monitoring. Each brushing session is scored and monitored and the cumulative data can be shared with dental professionals so that they can provide targeted help and advice to the patient.

The tracking device is a tiny hi-tech Bluetooth unit that attaches easily to any toothbrush and monitors brushing frequency, duration and, for the first time, angulation, so that correct brushing angles can be encouraged, reinforced and monitored to help prevent gum disease.

Brushlink was founded by CEO Dr Dev



Patel (featured in the *BDJ* in November: <http://go.nature.com/2hoKg8X>).

Through using Brushlink, patients can sync their brushing data with a Brushlink certified dental practice, for tailored dental hygiene recommendations, and earn bespoke discounts.

For more information about Brushlink and to order, visit <https://brushlink.com/>.

THE HUMAN HAND IS REMARKABLE



The human hands are amazing instruments of touch, expression and ability. They are probably the most valuable tools in your armamentarium and they should be looked after properly with high quality gloves from the Unigloves Vitality range.

Unigloves understands that you need premium quality and strength for effective protection but as experts in the field, Unigloves also know how to care for your hands properly.

Vitality gloves are available in a variety of sizes for the most suitable and comfortable fit. They feature double-chlorinated beaded cuffs making them easy to put on and remove as well as a micro-roughened texture to ensure optimal grip.

For an added bonus, Unigloves also coat the internal surface of each glove with a soothing Vitamin E (Lano-E) moisturiser to keep your hands flexible and hydrated.

The Vitality range includes:

- Vitality Nitrile – white, powder-free with Lano-E coating
- Vitality Latex – white, powder-free with Lano-E coating
- Vitality Latex scented – green, powder-free with Lano-E coating and scented with a pleasant citrus and peppermint flavour.

Your hands are remarkable and for gloves that offer protection and care, contact Unigloves today.

For further information about Unigloves products, visit www.unigloves.co.uk.

CLEAN AND UNCOMPLICATED

Dental Express can help you comply with infection control protocols with ease, with the Gojo Foam Soap Dispenser.

The large 700 ml cartridge will save you time on repeat refills. Available in either chrome and black or grey and white, you can choose the best fit for your practice. Touch-free, thus reducing the chance for cross-contamination and reducing mess, the Gojo Foam Soap Dispenser is easy to use, and can be refilled within seconds. The dispenser is free on loan when you buy the compatible cartridges, so you can find out how well it fits

within your practice with a low initial outlay.

For more about the Gojo Foam Soap Dispenser, visit www.dental-express.co.uk or call 0800 707 6212.



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



Tooth decay: Is today's grazing culture contributing to the high prevalence of tooth decay?

Despite a greater proportion of dentate adults in the UK engaging in good oral health behaviours than ever before,¹ dental caries continues to be one of the most common dental diseases in the UK.² Only one in ten UK adults meet the criteria of having excellent oral health,* with approximately a third having obvious dental caries.¹

So why does tooth decay continue to be a problem?

The gap between what and when we eat or drink and the measures we take to protect our teeth may be a contributing factor to this high prevalence of tooth decay. New data presented in the recent *Eat, Drink, Think* report published by the Wrigley Oral Healthcare Programme, presents evidence that suggests there has been a shift in eating habits of UK adults and identifies an increase in snacking between meals – a trend known as 'grazing'. The report revealed that most respondents (83%) consume at least one snack between meals and almost half (48%) enjoy two snacks or more per day.³ The data supports the 2010 report on oral health by the European Commission, which found the frequency of snacking in the UK is above the European average, with UK respondents reporting an average of 6.7 eating or drinking occasions per day compared with a European average of 5.4 occasions.⁴

Although brushing twice daily with

fluoridated toothpaste is still the most important method for preventing caries, the amount and frequency of intake of cariogenic foods and drinks have an influence on our oral health.^{1,5}

Data presented in *Eat, Drink, Think* shows that a significant number of respondents reported no oral health intervention after 56% of morning snacks and 60% of afternoon snacks.³ Reflecting on our eating and drinking habits, the report suggests that the current oral health guidelines – based on the assumption we consume three meals a day – may no longer be sufficient to maintain good oral health.

Research suggests that three quarters of UK adults brush their teeth at least twice a day and over two-thirds visit a dentist at least once a year.³ With such large numbers already following official advice, a simple low-cost preventative addition to current guidelines – for example, recommending appropriate oral health interventions after eating and drinking such as chewing sugarfree gum – would build on existing oral hygiene behaviours and help support better oral health in between brushing.

As proven by independent clinical research, chewing sugarfree gum for 20 minutes after eating and drinking effectively stimulates saliva and helps to neutralise plaque acid that can cause tooth decay.⁶ In addition to the oral health benefits of chewing sugarfree gum, there is also the potential for significant economic benefits. Research published in this Journal

showed that if all UK 12-year-olds were to chew one additional piece of sugarfree gum per day, the NHS could save up to £2.8 million in tooth decay costs per year.⁷ This cost saving rises to a potential £8.2 million if three pieces of sugarfree gum were to be chewed per day,⁷ the equivalent of 364,000 dental check-ups.⁸

Eat, Drink, Think found that two thirds of respondents were not fully aware of the oral health benefits of chewing sugarfree gum, but 42% said they'd be more likely to chew sugarfree gum after being told of these benefits.³

To view the complete findings of *Eat, Drink, Think* visit wrigleyoralhealthcare.co.uk.

**To identify the proportion of dentate adults who met these criteria, a composite measure was created. This measure of excellent oral health prospects comprised people who met all of the following criteria: 21 or more natural teeth; 18 or more sound and untreated teeth and roots; no decay detected at any site; no periodontal pocketing of 4mm or more and no loss of attachment of 4 mm or more; no calculus or bleeding.*

1. Adult Dental Health Survey 2009 – England, Wales, Northern Ireland, 2009. Available at: <http://content.digital.nhs.uk/pubs/dentalsurveyfullreport09> (accessed July 2017).
2. Steele J. An Independent Review of NHS Dental Services in England. 2009. Available at: http://www.sigwales.org/wp-content/uploads/dh_101180.pdf (accessed July 2017).
3. Kantar TNS' online omnibus survey (Onlinebus) of 2,743 UK adults. Conducted April 2017.
4. European Commission. Special Eurobarometer 330: Oral Health. Brussels: European Commission, 2010. Available at: http://ec.europa.eu/public_opinion/archives/ebs/ebs_330_en.pdf (accessed September 2017).
5. Public Health England (Department of Health). *Delivering better oral health: an evidence-based toolkit for prevention*. March 2017. Available at: <https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention> (accessed September 2017).
6. De Almeida P D, Gregio A M, Machado M A *et al.* Saliva composition and functions: a comprehensive review. *J Contemp Dent Pract* 2008; **9**: 72–80.
7. Claxton L, Taylor M, Kay E. The economic benefits to the NHS of increased use of sugarfree gum use in the UK. *Br Dent J* 2016; **220**: 121–127.
8. 1 Unit of dental activity = £22.50. 8200,000 / 22.50 = 364,000.



BDJ Team CPD

CPD questions: January 2018



Medical emergencies: asthma

- a) During an asthma attack a patient's airways go into spasm; b) Asthma never causes death

A) both statements are correct
 B) only a) is correct
 C) only b) is correct
 D) both statements are incorrect
- Which of the following might trigger an asthma attack in a dental patient?

A) sitting in the dental chair
 B) the smell of the disinfectant used to clean the surgery floors
 C) an overheated waiting room
 D) all of the above
- Select the **incorrect** statement regarding spacers and volumisers.

A) these devices help deliver asthma medication more effectively
 B) these devices can help sufferers achieve better control of their asthma
 C) not all spacers fit all types of inhalers
 D) a volumiser device increases the amount of medication hitting the back of the throat
- Which of the following is **false**?

A) patients should have their inhaler and spacer with them at all times
 B) if a patient does not start to feel better after taking ten puffs of their reliever inhaler at roughly two minute intervals, you should call 999/112
 C) an overdose of Salbutamol is usually fatal
 D) cold air can make the symptoms of an asthma attack worse



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



How to take part in BDJ Team CPD

BDJ Team CPD is available through the BDA CPD Hub. This site is user-friendly and easy to use. As well as the hour of CPD available for this issue of BDJ Team, there are still 20 hours of free BDJ Team CPD on the CPD Hub from 2016 and 2017.

Just visit <https://cpd.bda.org/login/index.php>.

To send feedback, email bdjteam@nature.com.

