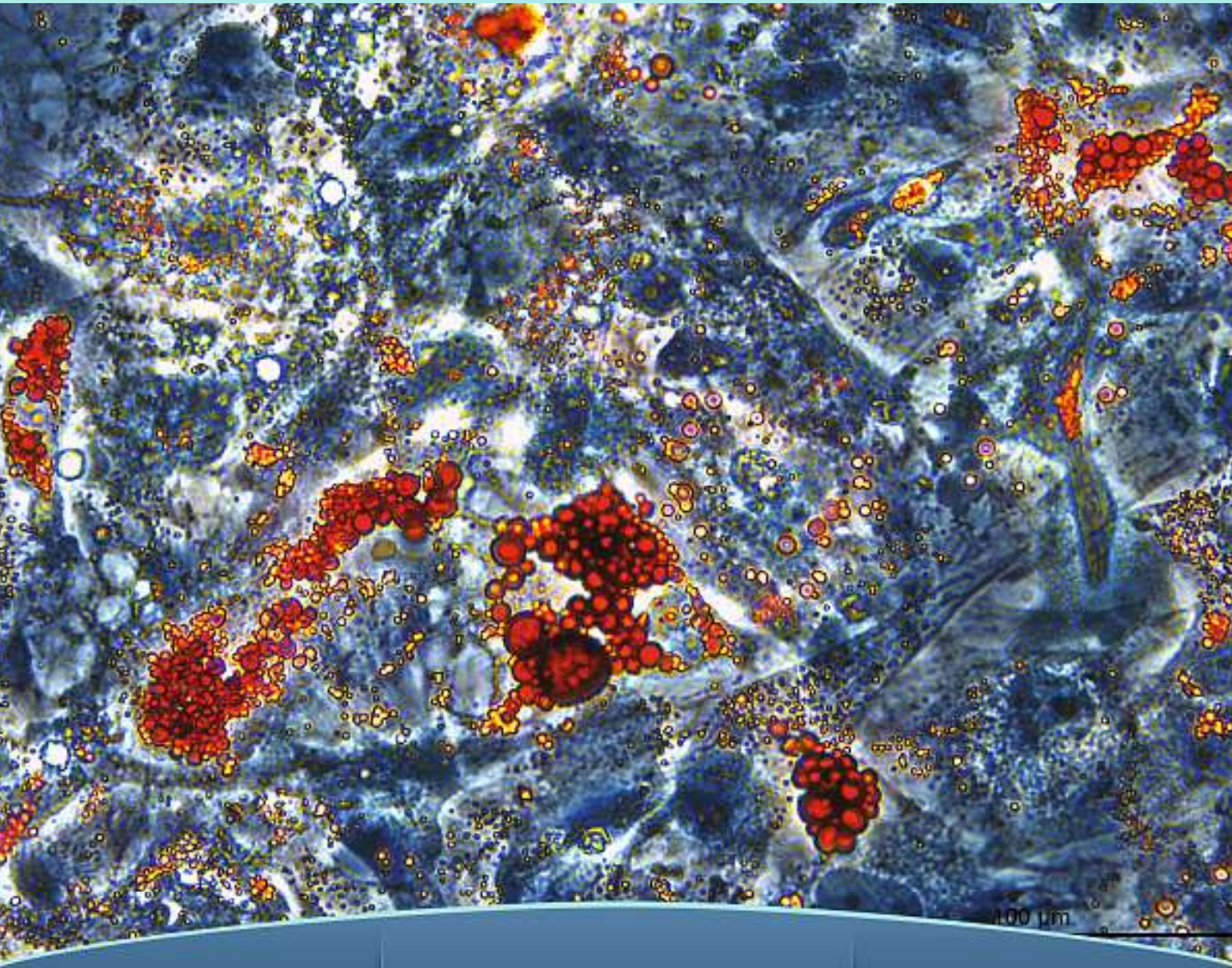
DENTAL HEALTH

VOLUME 64 | NO 2 OF 6 MARCH 2025

BSDHT.ORG.UK

THE JOURNAL OF THE BRITISH SOCIETY OF DENTAL HYGIENE AND THERAPY

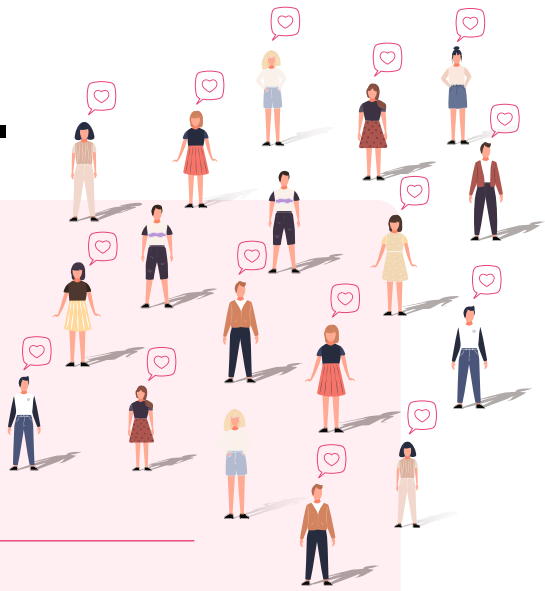


FACIAL AESTHETICS
PRACTISING SAFELY

PPI A STRATEGIC
MOVE TO PATIENT CENTRED CARE

MOUTH CANCER
IF IN DOUBT REFER

A GLOBAL SURVEY OF OVER 400,000 PATIENTS REVEALS...



94% PREFER GBT

GUIDED BIOFILM THERAPY®

over traditional cleaning methods

85%

COMMIT TO GBT

future appointments and further treatments

94%

RECOMMEND GBT

to friends and family

BECAUSE PATIENT SATISFACTION MATTERS.

Start your GBT Journey

Join a GBT masterclass with an SDA trainer

swissdentalacademy.com/courses-en/

Book a demo with one of our GBT experts

ems-dental.com/en/gbt-demo

Visit our NEW E Shop

gbt-shop.uk

INTRODUCING GBT READY

Your Airflow Prophylaxis Master
+2 EXTRA AirFlow Max
+2 EXTRA Piezon LED

£10,525 +VAT

Finance starting from £196.03 per month

* Data is based on the results of a global survey conducted with over 400,000 patients in dental practices using the state-of-the-art GBT method. Published in ZMK Nov/Dec 2024, further details are available at https://gbt-dental.com/TS-Vol4-Press-1

The mission of BSDHT is to represent the interests of members and to provide a consultative body for public and private organisations on all matters relating to dental hygiene and therapy. We aim to work with other professional and regulatory groups to provide the highest level of information to our members as well as to the general public. The Society seeks to increase the range of benefits offered to members and to support this with a clear business and financial strategy. The Society will continue to work to increase membership for the benefit of the profession.

BRITISH SOCIETY OF DENTAL HYGIENE AND THERAPY
Promoting health, preventing disease, providing skills

bsdht.org.uk

DENTAL HEALTH – ISSN 0011-8605

EDITOR
Heather L Lewis,
Bragborough Hall Business Centre, Welton Road,
Braunston NN11 7JG
Email: editor@bsdht.org.uk

BSDHT NATIONAL ENQUIRY LINE
Tel: 01788 575050
Email: enquiries@bsdht.org.uk

ADVERTISING SALES
Fay Higgin
Email: sales@bsdht.org.uk

CLASSIFIEDS & JOBLINE
Tel: 01788 575050
Email: enquiries@bsdht.org.uk

PUBLICATIONS TEAM
Nick Coller
Harriet Elsworthy
Marina Harris
Alistair Lomax
Ali Lowe
Patricia Macpherson
Elaine Tilling

EDITORIAL BOARD
Susan Bissett
Stacey Clough
Latha Davda
Kenneth Eaton
Cassandra Lewis
Jeanie Suvan
Victoria Wilson

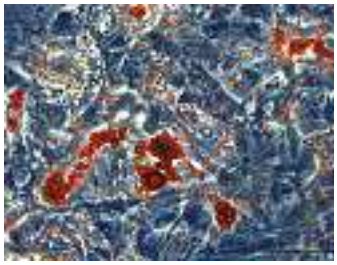
eCPD INDEPENDENT REVIEW PANEL
Marina Harris
Ali Lowe
Patricia Macpherson
Elaine Tilling

Annual Subscriptions for non-members: £155.00 per annum
UK 6 issues including postage and packing. Air and Surface Mail upon request.

Warners Midlands plc
The Maltings, Manor Lane, Bourne,
Lincolnshire PE10 9PH
Telephone: 01778 391000
Email: helpdesk@warners.co.uk
Web: www.warners.co.uk

This journal is printed on paper from an FSC® certified merchant

DENTAL HEALTH



18 ON THE COVER
Tooth stem cells a potential paradigm shift for a multitude of diseases

THE ORAL HEALTH SUMMIT

28-29 NOVEMBER 2025

EDINBURGH INTERNATIONAL CONFERENCE CENTRE

2025 JOINT CONFERENCE HOSTED BY

BSDHT
The British Society of Dental Hygiene & Therapy

BSP
British Society of Periodontology and Implant Dentistry

#OHS

#PERIO/SMILESAHEAD

VIEW THE PROGRAMME AND BOOK YOUR PLACE AT **BSDHT.ORG.UK**

Editorial

Let's learn together – it'll be fun!

This year, BSDHT is collaborating with our sister organisation the British Society of Periodontology and Implant Dentistry (BSP). We now invite you to the UK professional event of the year - a type of UK 'Europerio' in the beautiful city of Edinburgh - with a programme specifically designed to meet the needs of all clinicians involved in the prevention of oral diseases.

Collaborative Learning

This conference will be all about team work: working together with common goals and respecting and learning more about one another's contribution to our patients' oral health and well-being. It will bring together experts in dentistry, including dental hygienists, dental therapists, periodontists, implantologists, general dentists and researchers. This multidisciplinary approach will allow for the sharing of ideas, fostering a deeper understanding of how we interconnect in the care of our patients. You will gain exposure to new research findings, innovative treatment methodologies, and technological advancements that can significantly enhance your patient care.

As a forum for engaging in discussions on pressing issues in dentistry - such as patient management, new regulatory policies, and emerging public health concerns - delegates will have the opportunity to participate in conversations, and contribute to the collective growth of the profession, while also gaining a broader perspective on challenges and solutions that extend beyond their individual practice.

Hands-on Experience and Continuing Education

There will be three parallel streams running throughout the two days from which you can choose:

Joint stream: This will set the theme with discussion of the global burden of oral diseases and then extrapolate over the two days of conference to include national and international guidelines; the connection between periodontal and systemic health and risk profiling; behaviour change; patient's values and beliefs; and oral hygiene products. Presentations will also focus on implants – both the maintenance and risk profiling of patients.

BSDHT stream: This will include a number of hands-on workshops and presentations. There will be both hygiene and therapy focussed sessions as well as health and well-being workshops - important aspects of sustaining a long and fulfilling career.

BSP stream: This parallel session will present surgical and non-surgical modalities for the preservation of teeth, implants and soft tissues.

A real bonus for many delegates, who may not usually attend European conferences, is access to some well-known names in periodontology and implantology who will be flying in especially for the event.

One of the highlights of the conference is sure to be, "A pint of science please." This session will take the form of a debate by Professor Iain Chapple, Professor Mike Curtis, Professor Tariq Iqbal and Professor Philip Marsh. Our speakers are aiming for an informal relaxed discussion which is sure to be one of those seminal 'were you there' events!

Networking

You will of course have an unparalleled opportunity for networking. Connecting with your peers, mentors and professional and industry leaders fosters collaboration, encourages referrals and even opens doors to new career opportunities. Whether seeking guidance from experienced practitioners, discussing potential research partnerships, or simply sharing experiences with fellow professionals, the relationships built at this event are likely to prove invaluable.

For students and early-career dental hygienists and therapists, this conference will be especially beneficial. You will have the opportunity to interact with seasoned professionals, gain mentorship and explore potential career paths. Such exposure can help young professionals make informed decisions about their career trajectories.

An Investment in You

If you are aiming to elevate your career, enhance your patient care, and stay at the forefront of professional and industry advancements, attending this conference is an investment worth making. The knowledge gained, the connections formed, and the inspiration drawn, will undoubtedly contribute significantly to both your personal and professional growth. Don't forget: expenses are tax deductible!

Final Thoughts

Last, but not least, is the BSDHT drinks party at the end of Friday, with entertainment! There is also the opportunity to attend a joint black-tie dinner and ceilidh later that evening.

Booking will open on Friday 21 February, so book your ticket now! It is also advisable to reserve your accommodation – there is always the potential that rugby matches at Murrayfield may impact the availability of rooms.

See you there!

Heather

Heather Lewis

FROM THE PRESIDENT

I cannot believe how quickly the last two months have passed! As your new President, I continue to be busy in my role representing all members' interests.

Internal meetings

I chaired my first Executive and Council meetings (online) in January. We held them a week apart and the new format worked well allowing more time for information to be prepared. Both meetings felt collegiate and productive and I was heartened to receive some supportive messages afterwards. I hope the attendees felt able to share their thoughts and concerns and also that they had a voice. The Society can only be strengthened by working well as a team and we are open to all suggestions and proposals. There was a healthy discussion about the direction of the next few years and, with this in mind, we are now trialling 'proposal forms' for external engagements and new projects. We hope that they will allow us to streamline the business of the Society and align new work to our strategy and core values.

External meetings

I have also had the pleasure of representing us at numerous online meetings including the Dental Professionals Alliance (DPA), the GDC Scope of Practice consultation and the GDC Standards of Education consultation. I can assure you that we do our very best to think of all of your varied working environments when responding and I am grateful to the members of the Executive for their input.

International Federation of Dental Hygienists

I co-chaired my third meeting of the House of Delegates Membership Committee for the International Federation of Dental Hygienists (IFDH). I am pleased to report that I was successful last summer in having a motion passed that will allow dental therapists and dental therapy organisations to apply to be members of the IFDH. The same stringent criteria will apply but, as we carry out the same preventive care as dental hygienists, it is only right that dental therapists can join this knowledgeable and supportive international community. Please visit: https://ifdh.org/membership/ and remember that the International Symposium will be in Milan in 2026. Member only rates will be available.

Students

It was also my pleasure to be invited to give the Society's

school presentation to the year one dental hygiene and therapy undergraduates at Bristol University, in January. It is always a really energising and encouraging event and resulted in two students putting themselves forward to represent their School at Council. Disclaimer: if you spend more than twenty minutes in a room with me, you'll almost certainly end up volunteering for something!

Oral Health Summit 2025

One of the most exciting projects with which I am involved is the ongoing planning of the Oral Health Summit (OHS) in November, later this year. Professor West and I are so pleased to see our idea of joining forces come to fruition. Collaborating with the BSP is a great opportunity to learn with our peers and build meaningful relationships that support the profession and the patients for whom we share care. The event will run over two days (28th & 29th) and feature some world class speakers and specialists. There will be familiar formats but also some new sessions, such as 'The Pint of Science' and various workshops. This joint summit aims to support all who strive to provide quality, evidenced-based care, bringing you together to learn together. With excellent trade representation we are confident it could be one of the largest trade exhibitions of 2025. There will be social events to suit all tastes and budgets so look out for the details of how to book your place on our website and social media channels.

As the team prepares for our next Executive meeting, we remain dedicated to moving our projects forward and ensuring that we plan a budget for the coming year. We have some exciting new projects that I look forward to sharing with you in due course. It is our aim to continue to strengthen our reputation and begin to work more closely with patients as we plan new initiatives.

Rhiannon

Rhiannon Jones

OBITUARY

Julia Hill
(née Page)

9th August 1952 - 8th January 2025

It is with immense sadness that we announce the death of Julia, a former colleague and dedicated member for many years.

After qualifying as a dental nurse in 1972, Julia (Page) then completed her course in dental hygiene at Cardiff Dental Hospital. She commenced her working life with Gloucestershire Area Health Authority. Julia was then appointed assistant tutor at The School of Dental Hygiene at Cardiff Dental Hospital and after a few years, relocated to provide dental health education in Somerset Area Health Authority and also worked in general dental practice in Taunton.

Julia always had a thirst for learning and undertook study with the Open University gaining a Diploma in Applied Social Sciences in 1994 followed by a BSc (Hons) in 1995. She was awarded a Masters in Public Health (Health Promotion) from the University of the West of England, Bristol, in 2003. Over the years, she lectured and had papers and studies published.

Promotion within the NHS led her to work more in public health, rather than dental health, as a regional manager in the Oxford Health NHS Foundation Trust. She later moved to Exeter and took on the regional role for Health and Wellbeing and was Head of Health Improvement for NHS Devon, where she remained until she retired.

In the late 1970s, Julia was one of the earliest members of the South-West and South Wales Regional Group alongside past BDHA officers, Jean Bailey (Past President), Ursula Miles (Public Relations Officer), Lynne Cooper (Hon. Treasurer) and Patricia Macpherson and Sharon Allen (both Hon. Secretaries). From 1981-1983, Julia was Chairman of the South-West and South Wales Regional Group.

In 1983, Julia attended the 9th International Symposium on Dental Hygiene in Philadelphia with BDHA Past President Rosemarie Khan and presented a paper on the dental health education programme in Somerset.

In 1984, she became a BDHA Elected Council Member and served on a working party looking into ways of recruiting Association Membership. Continuing as an active Council and Executive Team member through to the millennium, Julia served as our representative to the Whitley Council PTB Committee - involved with negotiating pay and conditions within the NHS – Public Relations Officer; Honorary Secretary of the Association from 1991-1993; and was also a valued member on the Education and Practice Committee for many years.

Sue Lloyd (now Crothers) (BDHA President 1990-1992) said of Julia: "She was always very helpful and a good "laugh". I liked her very much. She was also very organised and made a good [Hon] Secretary. We had some very good committee members from the South-West, which was quite refreshing as it often was London/South weighted."

Jacqui Smith (BDHA President 1992-1994) recollects: "Julia was generous with her advice and support especially during the transition from President-elect to President, she had the gift of being able to listen to what others had to say. It was a turbulent time, the compilation and subsequent publication of the Nuffield Report ruffled feathers. Julia's considered and thoughtful opinions helped to temper my reactions which could be a bit "shoot first and ask questions later!" Julia wasn't in post for the kudos, she was there because she cared about her profession and the association that represented that profession."

Elaine Tilling recalls: "My memory of her is one of loyalty and commitment to our profession. She was one of the people that was always so friendly and welcoming at meetings and a person that clearly cared about the patients in her care… I also recall an uncontrollable urge to giggle when we were supposed to be listening to particularly mundane speakers!"

Patricia Macpherson was privileged to attend Julia's funeral, representing our Society, and had also been asked to deliver a eulogy, remembering a very dear friend who had encouraged and supported her both professionally and personally over some 45 years. Julia will be greatly missed.

Our deepest sympathy goes to Julia's husband Mark.

Patricia Macpherson
BSDHT Publications Team

ECONOMIC BURDEN OF **DENTAL CARIES**

A study, commissioned by the European Federation of Periodontology (EFP), examined inequalities in oral health by estimating the economic burden of dental caries by deprivation status in six countries. An international research team, including Professor Iain Chapple and Professor Moritz Kebschull, developed a simulation model to study the healthcare costs associated with managing dental caries from adolescence to middle age in the UK, Brazil, France, Germany, Indonesia, and Italy.

The model was based on national-level data about decayed, missing and filled teeth, the relative likelihood of receiving an intervention (such as a restorative procedure, tooth extraction and replacement), and clinically guided assumptions for different socio-economic groups. The findings reveal that the economic impact of dental caries is disproportionately higher in the most deprived groups, with the UK showing the highest per-person costs across the six countries at approximately £18,000 ($22,910).

Professor Iain Chapple commented:

"Our study highlights the critical need for early and sustained preventive measures to address the economic and health disparities associated with dental caries. By focusing on the most vulnerable populations, we can achieve substantial cost savings and improve overall oral health outcomes.

"In alignment with the recent World Health Organization's Resolution on oral health, the results of our analysis support the case for a more inclusive public health approach to caries management, that incentivises and focuses on prevention rather than treatment to improve oral health in our populations."

The study then analysed the potential healthcare cost reduction resulting from the implementation of various preventive measures, including both upstream and downstream interventions. These include societal-level initiatives like community water fluoridation, taxation on sugar-sweetened beverages, education programmes in schools, and oral health awareness campaigns; but also, individual-level measures such as maintaining good oral hygiene by brushing with fluoridated toothpaste and applying topical fluoride.

If applied uniformly across the population, these interventions are estimated to reduce caries progression rates by 30%, with the greatest reduction in per-person costs for caries management seen in the most deprived group. A levelling-up approach to preventative measures, targeting those most in need, would have an even greater potential for cost savings, with reductions of approximately £14,000 ($17,728) per person in the UK in the most deprived group.

Professor Moritz Kebschull, said: "We observed that people in the most deprived groups have more dental caries from the start, which leads to more caries overall and higher costs. Therefore, it's important to start preventive care early, focusing on reducing caries in young children and continuing throughout their lives."

You can read the paper in full here: Dunleavy G, Verma N, Raghupathy R, Jain S, Hofmeister J, Cook et al. Inequalities in oral health: estimating the longitudinal economic burden of dental caries by deprivation status in six countries. BMC Public Health 24, 3239 (2024). https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-20652-0

DID YOU KNOW...

DHCONTACT ONLINE IS UPDATED REGULARLY?

Dip in and out whenever suits you to pick and choose what interests you. With hyperlinks to further your reading there is sure to be something of interest for every member. Visit the website today!

https://www.bsdht.org.uk/dh-contact-news/

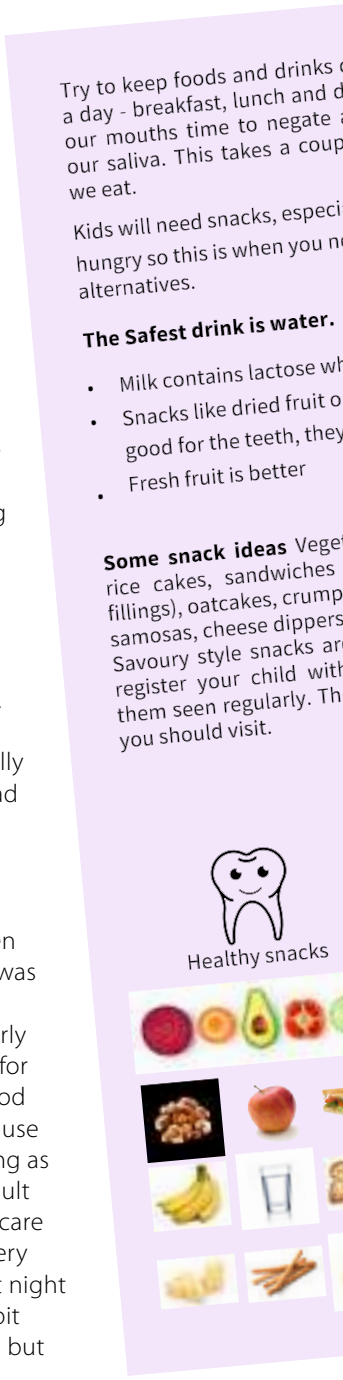
FROM THE HEART

Sarah Cox, the winner of the prestigious BSDHT Hygienist Member of the Year award 2024, kindly sponsored by Kin, shares her professional story with Elaine Tilling and reflects on the inspiration for her patient oral health information leaflet.

ET: What, or who, first inspired you to become a dental hygienist?

SC: I really wanted to be a district nurse and actually began training. However, it soon became obvious that the career pathway for that role was changing, and I was really only interested in providing one to one care. So, I dropped out of college! My mother was mortified, but I got a job in a local dental practice where I was lucky enough to be sent to a community clinic assisting a dental therapist. I loved it, and quickly decided that I wanted to become a therapist. I was lucky enough to have a dentist that supported me in fast tracking towards a certificate in dental nursing. Staying behind after work we practised 'spotter tests,' an important part of the exam. I also studied for my radiography exam at this time to help me in my application to become a dental therapist. I subsequently qualified in 2001 at the Eastman Dental Hospital. I worked clinically as a dental therapist for 16 years until I had my son Felix, who is now 5 years old.

I currently practise three days a week as dental hygienist. Having had a baby, I quickly realised that the emotional burden of working as a dental therapist, in what was a largely unsupportive environment, was too costly for me as a new mum. I regularly lost sleep about the patients that I cared for worrying about whether I had done a good enough job. On reflection, that was because I received no feedback or support. Working as a dental hygienist with predominantly adult patients, I feel more confident about the care I provide, I work single handed but in a very supportive practice and I can go home at night and leave the job behind. I do still feel a bit frustrated not to be using my full skill set, but there must be balance in life.


Try to keep foods and drinks
a day - breakfast, lunch and d
our mouths time to negate
our saliva. This takes a coup
we eat.

Kids will need snacks, especi
hungry so this is when you n
alternatives.

The Safest drink is water.

- Milk contains lactose wh
- Snacks like dried fruit o
  good for the teeth, they
- Fresh fruit is better

Some snack ideas Vege
rice cakes, sandwiches
fillings), oatcakes, crump
samosas, cheese dippers
Savoury style snacks ar
register your child with
them seen regularly. Th
you should visit.

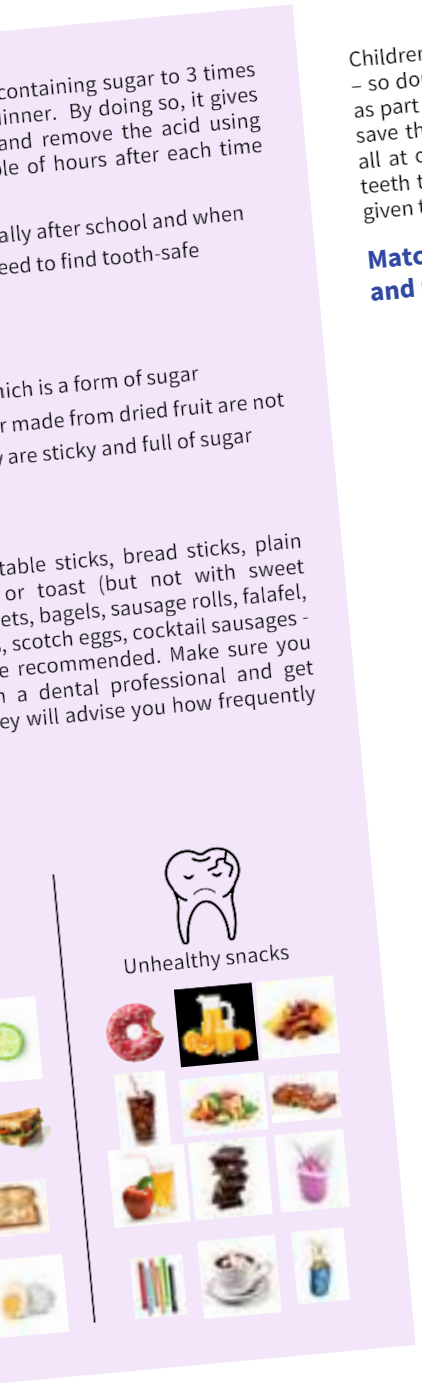
Healthy snacks

ET: What does your perfect clinical day look like?

SC: One that has a good mix of shorter and longer appointments. As I work without nursing support, this balance allows me time to do the job properly.

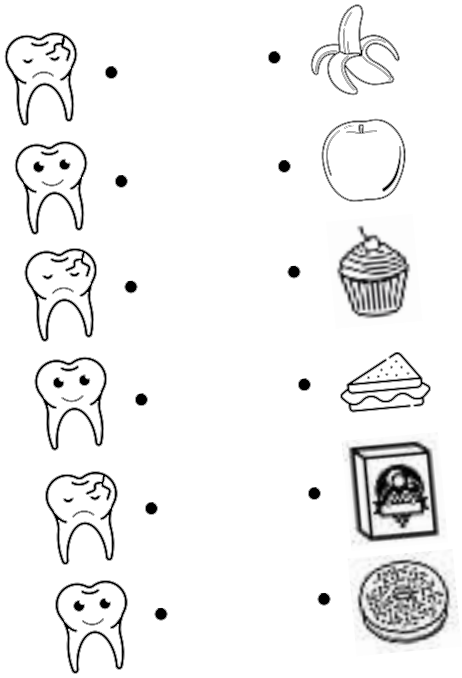
ET: What do you think is the biggest challenge to our profession now?

SC: In my opinion, overseas dentists working as dental therapists is adding to the current chaos in our dental services, in a way, devaluing our 'home grown' dental therapists. Access to care is getting worse and the NHS contract does little to help. In short, we need to get the basics of a fair contract sorted out.

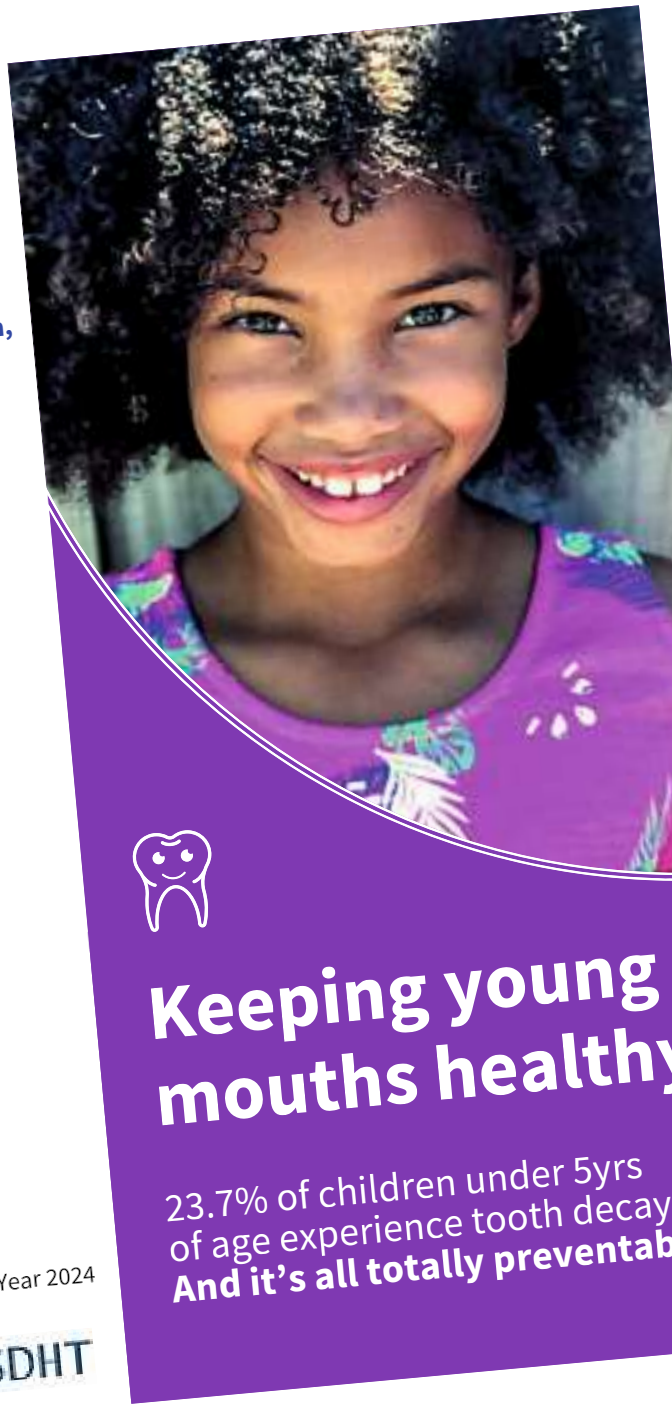


Children want sweets, and can have them in moderation – so don't ban them. Rather, try and give sweets to them as part of a dessert – straight after dinner or lunch. Try to save the sweets during the week and let them eat them all at once, on a Sunday after lunch! It's better for their teeth to have them at one time, after a meal rather than given throughout the day.

Match the healthy snacks to the happy teeth, and unhealthy snacks to the sad teeth



Sarah Rohan (nee Cox)
DipDH, DipDT (RCS)
Winner of
KIN Dental Hygienist of the Year 2024



Keeping young mouths healthy

23.7% of children under 5yrs of age experience tooth decay
And it's all totally preventab

ET: How did you feel about winning the BSDHT award?

SC: Being recognised by a peer and then put forward for this award, whilst a bit of a shock, was great! It was such a complete surprise! I put the leaflet together because I recognised a huge need in my local community. Standing at the school gates waiting for my son, chatting with the other mums, I very quickly found myself bombarded by a constant round of questions about their children's oral health. Many of the mums asked for my professional opinion about disclosing and toothbrushing. In fact, Felix's play dates have involved me joining in to disclose and teach toothbrushing! It was these interactions that inspired the design of the leaflet. My aim was to help them understand how to care for their families' oral health.

ET: Do you think that having such an award forum is beneficial to our membership?

SC: Yes! I am a pretty ordinary clinician, and many awards appear to be given to people in the limelight, well-known speakers etc. This flyer came about because, in my heart, I could see it was needed. So, receiving an award, and recognition from your peers, is a bit special and something that anyone can aspire to, just by being passionate about what you do - every day!

The BSDHT Member of the Year competition has run for the last two years, kindly supported by KIN Dental. Each entry is anonymous and during the second stage of the competition the entrant has to design a patient information leaflet on a topic set by the BSDHT team. Look out for more details during May when this year's competition is launched.

READERS FORUM

Bridging a gap in the local community

An ever-increasing gap in the provision of NHS dental services in local communities is all too apparent. Sadly, it is often those most in need that are unable to gain access to dental care, particularly the elderly. In the UK, it is estimated that there are 982,000 people living with dementia.[1] Consider how many elderly patients you may have not seen in a while, or requests from patients worried about the oral health of family and friends struggling with various conditions and mobility problems. There are so many people in need of oral health care, guidance and support.

First steps

Recently, we felt prompted to take action and, in the first instance, arranged a meeting with the principal GP of three local surgeries to discuss my plan to give a small presentation to the local community. He recognised the merit in my ideas and introduced me to his 'well-being' clinical manager. She was eager to gain some oral health care knowledge to incorporate into her work and we decided the first presentation would be to local medical and dental colleagues.

With the wheels set in motion, we contacted everyone who we thought could help support us: the manager of the local community centre, our chosen venue, kindly reduced hiring fees; the local flower club supplied flower arrangements; a helpful lady in the WI – who happened to be the chairwoman of every community group in the village - arranged for refreshments to be provided, for a donation to the local branch; a kind photographer provided services free of charge; and representatives from TePe and Oralieve kindly agreed to support us with samples and advice. Invitations were then sent.

Reflections

Although we had only a small attendance, feed-back was positive, with requests to do another one! Those who attended enjoyed being able to talk face-to-face with Jackie from Oralieve and Hayley from TePe and gain advice and knowledge on the use of their products. One very relieved lady reported that she can now give oral health care to her terminally ill brother: before the event, she had thought that she would need to ask her G.P for advice. The lack of awareness on denture care was quite amazing and everyone left as converts to interdental cleaning! Since the event it has become to the talk of the village! Most encouragingly, I have since received calls requesting presentations to different organisations and a local school.

I am currently working with our local health and well being professionals to launch another presentation day.

Penny Priddy

Email: penny.priddy@icloud.com

References

1. Alzheimer's Society. https://www.alzheimers.org.uk/blog/how-many-people-have-dementia-uk (Accessed 20 January 2025).

BY LINZY BAKER

FACIAL AESTHETICS SAFE PRACTICE

Non-surgical facial aesthetics remains a widely misunderstood sector, by the profession and the public. Social media is flooded with images of individuals who, often unwittingly, reflect poor treatment outcomes. Many clinicians will also observe this in some of their patients, most often in the case of dermal filler injected into a patient's lips. Conversely, there is often a veil of secrecy around other subtle, well-executed treatments.

Certain treatments, in the hands of a skilled practitioner, undoubtedly can complement some dental treatments, enhancing both a patient's appearance and confidence, alongside a beautiful smile. Dental hygienists and therapists, with their understanding of facial anatomy, are uniquely positioned to integrate facial aesthetics into holistic patient care.

This article explores the author's personal journey and growth in non-surgical facial aesthetics, the current opportunities for dental hygienists and therapists in this field, the importance of robust training and the pressing need for better regulation to protect patients and practitioners.

Becoming an Aesthetics Practitioner

As a student, I began to plan how to incorporate non-surgical facial aesthetics into my future daily practice to improve patient outcomes, whether as the finishing touch to a smile makeover or to aid replacement of volume loss around oral commissures to reduce episodes of angular cheilitis. Following graduation, I committed to the Level 7 Diploma which incorporated the study of: ethics and the law; the history of non-surgical facial aesthetics; dermatology; patient assessments; psychology; composition of products; procedures; and complications. I then created my brand and my company, *ELBE Aesthetics,* which I have been quietly growing ever since. I am currently undertaking further business training and aim to grow my business.

I am a champion of robust training in aesthetics and believe patient safety and quality care is paramount. Many introductory courses, or one day programmes, that try to deliver all the basics, do not enable clinicians to build confidence in procedures or emergency safety protocols. Extended qualifications, including the Level 7 and masters level programmes, offer comprehensive education on patient safety, anatomy and complication management. Research shows that longer, hands-on training programmes result in safer outcomes and increased practitioner confidence.[1,2] Comprehensive training programmes foster clinician proficiency in practical treatments and knowledge of emergency care, both fundamental to ensuring patient safety and satisfaction. The profession needs a standardisation of education.

In 2022 I became a trainer, which I thoroughly enjoy. Sharing knowledge and mentoring colleagues to achieve their goals and develop their skills is so rewarding. It also reinforces my own skills and training as I remain current with industry trends and continuous learning. I also provide ongoing support to delegates through our group channels answering questions and offering guidance. Mentorship not only enhances technical skills but also instils the values of patient-centred care and ethical practice.[3]

Opportunities

Dental hygienists' and therapists' background education in facial anatomy is a good foundation for those interested in extending their skills set. We are confident injecting our dental patients and when it comes to toxin and dermal fillers, we often become proficient quicker than delegates from other professions. We also already have a good knowledge of anatomical landmarks.

Dental hygienists and therapists can play a pivotal role in complementing dentists' work by offering holistic solutions that enhance both dental and facial aesthetics.[4] The addition of these skills allows us to carry out treatments such as: toxin to the masseter muscle to aid treatment of bruxism; or, prior to full arch implant rehabilitation, peri-oral and lip filler to assist framing of aesthetic smile makeovers; or restoration of facial volume loss in cases where patients have lost multiple teeth and thus structure to their overall facial appearance; or dermal filler to compensate for the aging process that has caused folding at the oral commissures to help provide relief from angular cheillitis.

Patient selection

Patient selection is fundamental to successful outcomes. Body dysmorphic disorder (BDD), is a mental health condition where a person spends a lot of time worrying about perceived flaws in their appearance, often unnoticeable to others. People of any age can have BDD, but it is most common in teenagers and young adults and affects both men and women. BDD is not linked to vanity or self-obsession, can be very upsetting and may have a big impact on a person's life. Studies estimate that up to 15% of patients seeking cosmetic procedures have body dysmorphic disorder.[5] As clinicians, it is important that

we can recognise and identify these patients prior to dental or non-surgical aesthetic treatment.

Regular psychological assessments and screening tools, such as the Body Dysmorphic Disorder Questionnaire (BDDQ), can help identify patients who may benefit from mental health support rather than aesthetic treatments.[6,7] Should we deem a patient suitable for treatment, and proceed with it, we must also be able to identify any cause for concern further down the line and know when to call time on doing more. These conversations can be incredibly difficult. It is worthwhile having a referral pathway in place for any patients about whom we may have concerns, to address the psychological factors prior to proceeding with a treatment plan.

Level 7 training does factor in psychology and assessment for BDD. However, regular updates and training in this area would benefit all clinicians in their daily practice. There will be times in a clinician's daily practice when they will identify a patient who has become obsessed with having more treatment, more frequently. In such cases, it is likely to become clear that they will never be satisfied, and this is an insight into their altered perception of themselves. Unfortunately, patients do not like being told 'no' and may seek treatment elsewhere with non-medical practitioners.

At a time when mental health is at the forefront of many conversations, social media and public exposure to advertising creates a need, or desire, in some people to have a certain appearance, or to improve the way they look. It is vital to be cautious when carrying out procedures, manage expectations and do not be afraid to approach difficult conversations with our patients. It is sometimes in their best interests to do nothing.

Legislative Changes and Public Safety

There are significant risks when carrying out procedures to the facial structures due to the network of vessels within the head and neck. A vascular occlusion, which if not identified and treated in an appropriate time scale, could lead to blindness and tissue necrosis, impacting a patient emotionally and psychologically.

As a currently unregulated sector, who can, and who should, be performing these treatments is unclear and poses risks to patient safety. Unregulated and uninsured practitioners pose a real risk to their clients, but with no real consequence to themselves. Undercover news investigations and documentaries into non-medic training centres have highlighted the potential problems. Lay people are being enticed to undertake courses for procedures which are run by non-medics and are sometimes incredibly invasive.

There have been calls for better regulation from the industry for a long time and in recent years a public consultation was opened. The Joint Council for Cosmetic Practitioners (JCCP) has advocated for this regulatory framework, emphasising patient safety and professional accountability. The idea behind the consultation was the legal requirement for both practitioners and premises to be licensed. It has also segregated various aesthetic procedures into green, amber and red categories (Table 1) to differentiate who would be legally permitted to carry out these different levels of treatment. Following the recent change in government it is likely it will now be delayed. However, encouragingly, in a recent ITV interview, the Health Secretary, Wes Streeting, did express his concern about the risks to the public and maintained that he would continue momentum.

Table 1: **Proposed categories from Government consultation 2023**

Green	Amber	Red
Low risk	**Medium risk**	**High Risk**
• Microneedling • Mesotherapy • Intense pulsed light and light emitting diode therapies • Chemical peels that involve viable epidermis • No-needle fillers • Micropigmentation, including microblading and nano blading • Non-ablative laser hair removal • Photo rejuvenation	• Botulinum toxin injections • Semi-permanent facial dermal fillers • Biorevitalisation and skin boosters • Vitamin and mineral injection treatments • Platelet rich plasma therapy • Injection microscleratheraphy • Weight loss injections • Carboxytherapy • Cellulite subcision • Injection lipolysis with a prescription-only medicine • Cryolipolysis • High-intensity focused ultrasound • Radiofrequency treatments • Plasma ablation/fibroblast • Non-ablative lasers • Medium-depth peels • Topical prescription-only medication treatments • Electrocautery • Cryotherapy and/or and cryoautery	• All thread-lifting procedures • Hair restoration surgery • Procedures aimed at augmenting any part of the boy, in particular the breast, buttocks, and genitals, typically using autologous fat or dermal fillers • Dermal micro-coring • Hay fever injections for reducing redness or blotches on the skin • The combination of ultrasound and large bore cannula for liposuction • Deeper chemical peels (e.g. phenol peels) • Lasers which target the deeper layers of the dermis (Co2 Lasers, ablative) • All intravenous injectables and infusions • The provision of any procedures where the circumstances of the procedure could be considered the treatment of a disease, disorder or injury

Within the discussions regarding legislation and regulation, the Level 7 Diploma is likely to be the qualification that will be required for clinicians to be able to continue to practice facial aesthetics. However, it is important that clinicians are not coerced into undertaking training when there has not been any changes in regulations, as yet.

Summary

A professional's educational journey never ends. Constant advances in treatments, new protocols, patients' and delegates' demands means that personal continuous development is paramount: maintaining standards and ensuring latest techniques help us better care and serve our patients' needs.

The future of aesthetics should be one of safe and ethical practice with regulation for training academies and practitioners to ensure the public are able to make safe choices when choosing where they have treatment. The cost of these procedures will continue to rise and those seeking, but unable to afford, treatments may resort to off-label or unlicensed products. As in dental tourism, patients are likely to travel for cheaper procedures abroad. By continuing to prioritise patient safety, education, ethical practice and providing robust training programmes we as a profession can help shape a future in which facial aesthetics is a trusted, respected and well-regulated profession.

Author: Linzy graduated as a dental therapist from Barts and the Royal London Dental Hospital in 2017 and launched her career in Harley Street, London. As well as representing her colleagues on various boards and committees, Linzy spends a lot of time working hard to further her role and skills attending many post-graduate programmes in all things dental and aesthetic.

Contact: linzy@hotmail.co.uk - @linzydht - @ELBEAesthetics

References

1. Kumar N, Parsa AD, Rahman E. A systematic review on the current trend in nonsurgical aesthetic training for knowledge, skill, and professional identity formation. *Aesthet Surg J.* 2022;**42(9)**:1056-1063.
2. Alam M, Gladstone H, Kramer EM, Murphy JP Jr, Nouri K, Neuhaus IM, et al. ASDS guidelines of care: injectable fillers. *Dermatol Surg.* 2008; **34 Suppl 1**:S115-148.
3. Nathwani S, Rahman N. GROWing in dentistry: mentoring the dental professional. *Brit Dent J.* 2022;**232(4)**:261-266.
4. Al-Mukhtar Z. The integration of facial aesthetics and aesthetic dentistry. *Aesthet Dent.* 2024;**1(2)**:65-72.
5. Veale D, Gledhill LJ, Christodoulou P, Hodsoll J. Body dysmorphic disorder in different settings: a systematic review and estimated weighted prevalence. *Body Image.* 2016;**18**:168–186. doi:10.1016/j.bodyim.2016.07.003.
6. NHS. Body dysmorphic disorder (BDD). NHS. Available from: https://www.nhs.uk/mental-health/conditions/body-dysmorphia/
7. Türk CB, Maymone MB, Kroumpouzos G. Body dysmorphic disorder: A critical appraisal of diagnostic, screening, and assessment tools. *Clin Dermatol.* 2023;**41(1)**:16-27.

NEW Colgate Total®.

Extend your professional care.

DENTIST RECOMMENDED #1

NEW FORMULA*

NEW Colgate Total® empowers your patients with active prevention between visits.

The new uniquely* stabilised **stannous formula** fights the root causes of many common oral problems.†

3x
REDUCTION OF BACTERIAL BIOFILM‡

31%
REDUCTION IN CALCULUS FORMATION‡

34%
REDUCTION IN GUM PROBLEMS§

*US Patented.
^Colgate® Brand, Toothpaste, UK, Dentist Survey 2023. To verify contact ukverification@colpal.com.
†Bacterial plaque reduction, with 3 months continued use.
‡Vs non-antibacterial fluoride toothpaste with 3 months of continued use.
§Vs non-antibacterial fluoride toothpaste with 6 months of continued use.

PROFESSIONAL ORAL HEALTH

TOOTH STEM CELLS
A POTENTIAL 'PARADIGM SHIFT' FOR A MULTITUDE OF DISEASES

Dental Health delves into the world of tooth stem cells with Amanda Williamson from Future Health Biobank to discover their fascinating potential, and the benefits to your practice and patients.

DH: To get us started, when were tooth stem cells discovered?

AW: They were first discovered in adult teeth in 2000, with stem cells from milk teeth found a couple of years later. They are mesenchymal stem cells (MSCs), however, stem cells from adult teeth are known as 'dental pulp stem cells' (DPSCs), and those from milk teeth are referred to as 'stem cells from human exfoliated deciduous teeth' (SHED). With the first stem cell transplant in the 1950s, and the cryopreservation of other types of stem cells becoming more commonplace, these discoveries were naturally of interest to the scientific community.

DH: What can stem cells from teeth be used for?

AW: The mesenchymal stem cells found in teeth are some of the most exciting cells we work with. A journal article published in 2019 provided a concise review of scientific studies using dental pulp stem cells.[1] These studies suggested that DPSCs are effective for conditions such as: spinal cord injuries; Parkinson's disease; Alzheimer's disease; cerebral ischemia; myocardial infarction; muscular dystrophy; diabetes; liver diseases; eye diseases; immune diseases; and oral diseases. These cells have the potential for use in a cell-therapeutic paradigm shift to treat diseases.[2-4]

A quick internet search shows that the prevalence of conditions such as type 1 and 2 diabetes, strokes, Alzheimer's and dementia are all expected to rise significantly in the coming decades. You can't help but be excited about the role that regenerative medicine could play creating new treatments.

DH: How are stem cells stored?

AW: We are all born with stem cells, however as we age and they are exposed to the environment, they diminish over time. Stem cell storage gives people the opportunity to access the benefits of clinical applications that may arise from both current and future clinical trials.

The process of storing stem cells is really simple for an individual, however it gets more complex in the laboratory. At the lab, a tooth is checked for its suitability for processing, then cells are extracted from the dental pulp. Scientists will proliferate the cells until a sufficient number of high-quality cells are present. These cells are then divided into multiple vials and cryogenically frozen in a vapour phase of liquid nitrogen, for up to many decades.

We have released 26 samples of these cells for families. These include clinical trials or research into treatments for: Autism; type 1 and 2 diabetes; regeneration of knee cartilage; Aicardi-Goutières syndrome; and cleft palate.

DH: In your experience, why do families store stem cells?

AW: There many reasons why people choose to store their family's stem cells; from my experience, these include genetic predispositions and the security of knowing you have a 100% cell match.

We also store stem cells from a baby's umbilical cord; with awareness of stem cell banking relatively low, parents often miss the opportunity for that service. With the tooth stem cell service, they are relieved to find there is another chance.

Our company is predominantly chosen by families for their children who are about to lose their milk teeth. However, it is also available to those who are having their wisdom teeth removed or healthy teeth extracted for orthodontic purposes. The collection kit provided contains an antimicrobial tablet allowing the child to store their stem cells from naturally lost teeth, without the need for a clinical extraction.

DH: Please explain a little more about the differentiation of stem cells.

AW: One of the defining characteristics of stem cells is their ability to turn into other cell types in the body, allowing the body to use these cells to repair and regenerate tissues, known as 'plasticity'. The process of stem cells turning into other cell types is called 'differentiation'. It occurs naturally within the body and starts at the very beginning of life – humans start as a fertilised egg cell which divides into 2 cells, then 4, then 8, then 16 and so on. After a while, these cells start turning into other cell types and eventually they will go on to form all the cell types that make up the human body (nerve cells, muscle cells, blood cells, skin cells etc.).

The Human Tissue Authority require facilities, such as our company, Future Health Biobank (FHBB), to perform many experiments to demonstrate that the samples stored fulfil all sorts of quality criteria, confirming that they are of suitable quality for potential future therapeutic use. This includes demonstrating that the cells stored from umbilical cord tissue

and dental pulp can be differentiated. To do this, umbilical cord tissue and dental pulp stem cells are cultured in the lab with various chemical cocktails that are designed to make them turn into other cell types.

The standard method to illustrate that cells have retained their plasticity is to turn them into osteocytes (bone-forming cells),

Figure 1: **Undifferentiated cells at the start of the experiment.**

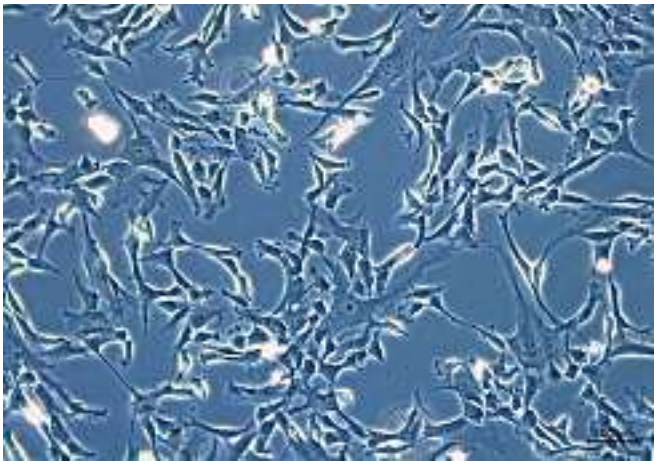
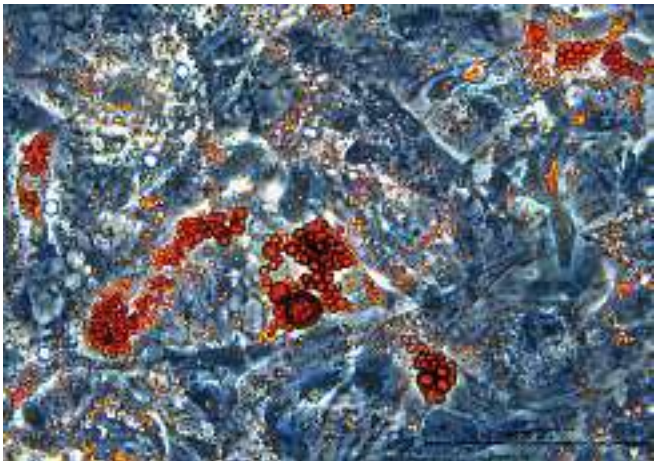


Figure 2: **Dental pulp cells which have been turned into osteocytes. To demonstrate that the differentiation has been successful, the cells are stained with alizarin red which specifically stains calcium deposits.**

Figure 3: **Umbilical cord tissue cells which have been turned into adipocytes. To demonstrate that the differentiation has been successful, the cells are stained with oil red O. The fat inside the cells appears as round droplets, which stain bright red.**



chondrocytes (cartilage-forming cells) and adipocytes (fat-forming cells), a process known as tri-lineage differentiation. From starting the culture through to imaging, the final result takes around 5-6 weeks.

These electron microscopy images are from some recent experiments. To give an idea of scale, the bar in the lower right corner of the pictures is a tenth of a millimetre long.

To demonstrate that the cells can turn into chondrocytes (cartilage forming cells) FHBB grow tiny (less than 1mm across) spherical pieces of what is essentially artificial cartilage.

To check that this has worked, slices of this tissue 0.005mm thick are stained with a variety of chemicals to show that chondrocyte formation has been successful.

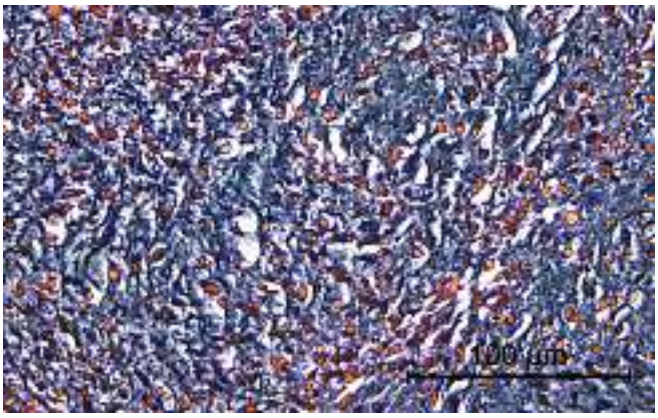
The experiment illustrated below shows umbilical cord tissue cells which have been turned into chondrocytes.

Figures 4 and 5 are of the same sample taken at two different magnifications. This sample has been stained with two different dyes:

- Nuclear fast red: shows the cells, which appear as irregular red spots.
- Alcian blue: stains glycosaminoglycans, a class of molecules which are an important component of cartilage – they contribute to its shock-absorbing properties.

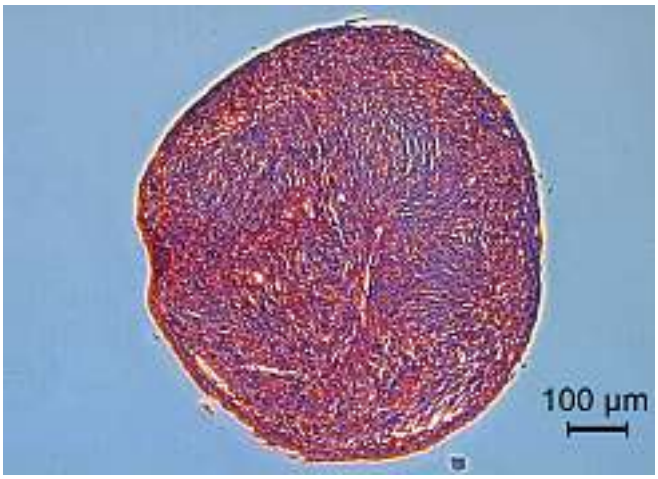
Figure 4

Figure 5



Figures 6 and 7 are images are the of same sample taken at two different magnifications. This sample has been stained with safranin-O, a dye which binds to a class of molecules called proteoglycans which are also a major component of cartilage tissue.

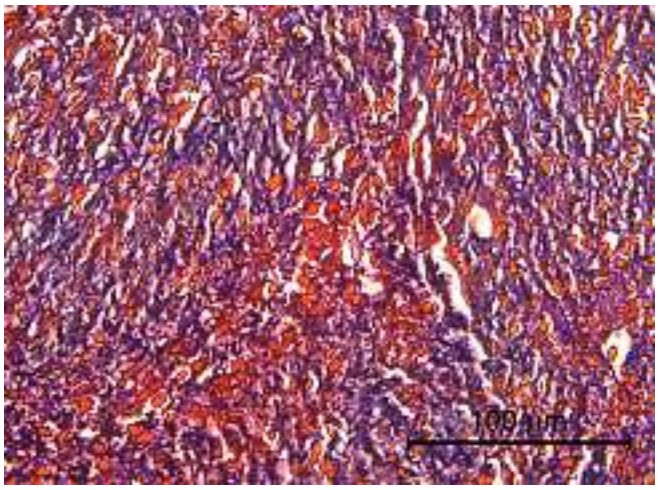
Figure 6



If any reader is interested in becoming a referral partner, please scan the QR code for further information.

futurehealthbiobank.com/stem-cell-referral-partner

Figure 7



References

1. Yamada Y, Nakamura-Yamada S, Kusano K, Baba S. Clinical potential and current progress of dental pulp stem cells for various systemic diseases in regenerative medicine: a concise review. *Int J Molecul Sci.* 2019;**20(5)**:1132. https://doi.org/10.3390/ijms20051132
2. Namjoynik A, Islam MA, Islam M. Evaluating the efficacy of human dental pulp stem cells and scaffold combination for bone regeneration in animal models: A systematic review and meta-analysis. *Stem Cell Res Ther.* 2023;**14(1)**:132. https://doi.org/10.1186/s13287-023-03357-w
3. Fawzy El-Sayed KM, Ahmed GM, Abouauf EA, Schwendicke F. Stem/progenitor cell-mediated pulpal tissue regeneration: a systematic review and meta-analysis. *Int Endodont J.* 2019;**52(11)**:1573-85. https://doi.org/10.1111/iej.13177
4. Sui B, Wu D, Xiang L, Fu Y, Kou X, Shi S. Dental pulp stem cells: from discovery to clinical application. *J Endodont.* 2020;**46(9)**:S46-55. https://doi.org/10.1016/j.joen.2020.06.027

ivoclar

Education for Prevention & Care specialists

We are committed to supporting dental professionals like you in developing your knowledge and expertise and in honing your skills to perfection.

Education that works for you

Our Prevention & Care team can deliver education modules to you and your wider dental team in practice at a time and date that works for you. We can also provide education virtually, it's your development that matters.

Big Protection for Little Teeth

The "Big Protection for Little Teeth" workshop equips Dental Hygienists and Therapists with essential skills in paediatric oral health care.

Understanding paediatric oral health needs

This program focuses on preventive strategies like plaque detection, fluoride treatments, and fissure sealants to protect children's teeth from decay. The module looks to address the oral health challenges specific to different stages of childhood, from primary teeth through early permanent dentition.

Comprehensive, patient-centred care that fosters lifelong oral health for young patients

Learn the application of fluoride varnishes and gels, with a focus on preventing early childhood caries and how to assess caries risk in children and determine the appropriate frequency and type of fluoride treatment for individual patients.

Develop the knowledge on the criteria for selecting which teeth should receive fissure sealants, including how to assess the child's risk factors for developing cavities. Train on the technique for applying fissure sealants to young patients' teeth, focusing on molars and other teeth with deep grooves susceptible to decay.

Effective communication with both children and parents

Create and communicate personalized homecare plans that include age-appropriate brushing and flossing techniques, dietary advice, and the use of fluoride toothpaste. Emphasise the role of parents in maintaining their children's oral health, providing strategies for educating and motivating parents to ensure adherence to homecare routines.

The Big Protection for Little Teeth module offers 1 hour eCPD and is available to book by scanning the QR code

waterpik™
waterflosser™

#1 WATER FLOSSER BRAND

ELEVATE YOUR PATIENTS' ORAL HEALTH WITH WATERPIK™

The Waterpik™ water flosser uses PRECISIONPULSE™ technology to clean between teeth in hard-to-reach places and deep below the gumline where ordinary string floss doesn't reach.

50% OFF*

Code: **PR050**

*Limited to one countertop and one cordless model per year per Dental Professional.

THE ORIGINAL
WATER FLOSSER BRAND

REMOVES UP TO 99.9% OF PLAQUE BACTERIA

ORAL HEALTH FOUNDATION APPROVED

Our clinical superiority is unmatched, delivering results that speak for themselves.

REMOVES
99.9%
OF PLAQUE
FROM TREATED AREAS*
*Independent clinical study. Go to www.waterpik.co.uk for details.

REDUCES GINGIVITIS
UP TO
50%
MORE THAN STRING FLOSS

HEALTHIER GUMS
WITH UP TO
93%
LESS BLEEDING
IN JUST 4 WEEKS

CLEANS PLAQUE AROUND BRACES
UP TO **5x BETTER**
THAN BRUSHING ALONE

HELPS IMPLANT GUM HEALTH
UP TO **2x MORE**
THAN BRUSHING AND STRING FLOSSING

LEARN MORE AT
waterpik.co.uk

BY ASHLEY SUDLOW

MOUTH CANCER SCREENING IF IN DOUBT... ALWAYS REFER

The General Dental Council (GDC) requires registrants to engage in continual professional development in a number of subjects, including an understanding of mouth cancer. On a practical level, it is vital that with this knowledge clinicians feel confident to discuss this emotive subject with their patients and also confidently know when to refer to secondary care if they suspect any sinister pathological change in a patient's soft tissues.

Despite continuously updating our knowledge and skills, when carrying out mouth cancer screening on a patient it is not uncommon to be informed: "Nobody has ever done that before!" Furthermore, many patients are unaware that recreational habits, such as tobacco use and alcohol consumption (especially combined) are major risk factors for mouth cancer.[1] This raises the question: is it that we, as a profession, are not carrying out regular mouth cancer screenings, or rather that we are not communicating this fact to our patients?

Are we doing enough to raise awareness with our patients?

Public awareness of the signs and symptoms of mouth cancer is as low as 20%, whilst knowledge of the major risk factors is only 8%. Every dental examination undertaken without a discussion informing patients that a mouth cancer screening is also being performed is a missed opportunity for raising awareness. Last year alone, 10,825 people in the UK were diagnosed with mouth cancer and, sadly, 3,637 of them died.[1]

No one should be exempt from mouth cancer screening. Anyone could develop a soft tissue abnormality at any time. Those with a history of mouth cancer have an increased potential for a recurrence or further primary tumour. Just like self-checks for breast cancer and testicular cancer are encouraged, all patients should be shown how to self-assess for mouth cancer, and for those with a history of mouth cancer, we should not assume that they know how to check their mouths and treatment sites for changes. However, it is important that clinicians are mindful that patients may find this traumatic and may struggle, or even avoid looking, for fear of noticing a change.

Case report

Dental hygienists and therapists have been shown to be as competent as dentists in the detection of mouth cancer.[2] I felt confident in my abilities, and I thought I knew what to expect of a surgical graft site, until I met Tom (name changed), aged 57, when he attended for a hygiene appointment in December 2023. His last routine exam had been more than a year previously in September 2022. Since that time, he had attended for emergency care only.

Tom was an ex-smoker of 30 years and consumed 25 units of alcohol over a week. His medical history revealed he had been diagnosed with granulomatosis with polyangiitis, previously known as Wegener's granulomatosis. In 2016, a malignant tumour was detected on the right lateral border of his tongue. Treatment involved surgical excision, along with a neck dissection to remove the lymph nodes in his neck, followed by reconstruction using a soft tissue graft from his left forearm. It was decided that neither chemotherapy nor radiotherapy was required. He was currently taking rituximab, ramipril, omeprazole and co-trimoxazole.

On examination, a soft tissue screening detected no abnormalities extra-orally. The intra-oral soft tissue checks involved examining the graft site on the right lateral border of the tongue, which initially was as expected - pale pink, with a few hairs from the forearm graft donor site and smooth over the tongue (Fig. 1). On the right-hand side, over the initial graft site at the posterolateral borders, there was a soft raised area which looked different to the surrounding tissue, around 2cm in size, slightly speckled towards the ventral surface and floor of the mouth (Fig. 2). Tom admitted that he did not check his graft site for changes. A careful explanation was given about the importance of an examination at every dental appointment

Figure 1: **Original graft site on right lateral border of the tongue**

Figure 2: **Raised area on the margins of the initial graft**

to establish everything remained healthy and normal for him. Tom was shown in the mirror the graft area, and the potentially concerning area on the posterolateral border, however he could not say if this was a normal presentation since his surgery in 2016.

On further discussion, Tom confirmed that he had not had any reviews or follow-ups with his oncology team since the COVID-19 pandemic in 2020 and agreed to contact his surgeon following this appointment. During a follow up phone call the next morning, I suggested that I arrange an urgent suspected cancer (USC) referral to be sent to his local hospital maxillofacial department, given the appearance of the area and taking the history into account, to which he gratefully consented. A referral was subsequently sent using the two-week USC pathway via the Rego digital referral platform.

Two days later, Tom was seen by an oral maxillofacial surgeon at which time the examination confirmed a 2.5cm soft growth on the right lateral border of his tongue. No lump was palpable in his neck and there were no symptoms related to the growth. An MRI of his head and neck, CT scan of his neck and thorax, and a biopsy were arranged for the following day.

An incisional biopsy on the right lateral border of the tongue was carried out, which did not reveal any obvious invasive cancer, therefore a deeper biopsy under general anaesthetic was required to confirm this finding. The biopsy procedure was challenging due to the effects on the tissues from previous biopsies at the site. The subsequent histopathological report revealed the presence of a squamous cell carcinoma. The treatment plan would be discussed at the multi-disciplinary team (MDT) meeting that same week.

The surgery subsequently took place in February 2024, two months after his hygiene appointment. The procedure lasted 14 hours and involved a partial glossectomy, neck dissection and reconstruction using a left parascapular fasciocutaneous flap (Fig. 3). The lower right first and second molars were also extracted.

The following month, Tom was reviewed when it was confirmed

PARADISE
DENTAL TECHNOLOGIES

FINER • SHARPER • STRONGER

Expertly crafted to provide maximum comfort and tactile sensitivity

01535 656 312
SWALLOWDENTAL.CO.UK
SALES@SWALLOWDENTAL.CO.UK

ORDER NOW

SWALLOW

Figure 3: **Post reconstruction using a parascapular fasciocutaneous flap**

his cancer had been pT1 well differentiated squamous cell carcinoma (pT1 meaning that a pathological diagnosis was confirmed following removal). During the review it was noted that the graft donor site and the graft site itself were healing well, and that the cancer had not spread to the lymph glands. The graft area was intentionally made larger than necessary in the event that radiotherapy would be required, so as to allow for any shrinkage of the tissues. This would be reviewed in a few months with consideration for reshaping if it were still interfering with function. A referral to a speech and language therapist was made and Tom was advised to take at least a month off work.

Tom's speech and swallowing continued to improve over the following month and he returned for his routine hygiene appointment three months post-surgery, in May 2024. He reported that his tongue was now fused to the right-hand side floor of his mouth, and therefore has restricted movements. This made swallowing pills more challenging and his speech was more affected this time around.

He continues to have regular follow ups, with a further MRI of the neck planned as part of surveillance.

Tom continues on three-monthly hygiene visits, with the most recent being in November 2024. Over these visits Tom's oral hygiene has been improving, from starting with a bleeding score of 26% in December 2023, to currently 4%. Tom has been considerably motivated to improve his oral hygiene, more so now in light of the loss of the lower right first and second molars, and he has been referred to a consultant in restorative dentistry to improve function and mastication.

A few words from Tom

"I am extremely grateful to Ashley for discovering the recurrence of mouth cancer underneath my tongue. Due to Covid, I had stopped my regular check-up appointments with my surgeon, and foolishly hadn't re-arranged them once the Covid risk had abated. I count my lucky stars that I made an appointment with Ashley when I did. Again, due to Covid, I hadn't seen a hygienist for a couple of years. I had not appreciated that part of the role of a hygienist is to look for signs of mouth cancer. Ashley had been thorough in checking my history before my appointment, so when she examined me, she was quick to ask questions about my previous surgery for cancer on my tongue. Although she was unsure if she was seeing scarring from the surgery or recurrence of the cancer, she took no chances, and immediately referred me to my maxillofacial surgeon, who was very impressed with Ashley's work. The subsequent biopsies confirmed that the growth was cancerous, and further extensive surgery was required to remove it. Because of the size of the growth, it required 14 hours of surgery to remove it and replace the lost tongue mass with a graft from another part of my body. However, it could have been so much worse had Ashley not discovered the growth when she did. Thanks to her diligence, I can still speak and eat normally."

Reflections

A considerable number of patients seem genuinely surprised that mouth cancer screening is carried out at their routine hygiene appointment. Despite initially thinking that they simply did not recall that it had been done at their previous visits, seven years post-graduation, many new patients still say the same thing. Surely, they cannot all be forgetting that this potentially life-saving screening had been conducted?

Discussions with colleagues reveals mixed responses: some stated that whilst they do not discuss it with their patients, they are doing the physical and visual mouth cancer screening; others said they do not know what they are feeling for and therefore do not do it; some assume that other members of the team are doing it; whilst others said they feel they do not

have the necessary time. Each scenario ultimately means one thing: we have failed to raise awareness, right at the starting line!

Dental hygienists and therapists have been shown to be as competent as dentists in the detection of mouth cancer. Whilst we may not be confident in what we are feeling for or looking at when it comes to mouth cancer detection, the more we do it and normalise it, the easier it becomes to identify when something does not look quite right, or feels slightly different. Our eyes and our fingers are not diagnostic tools - and it is important that we take a moment to remind ourselves of that; we are not expected to diagnose cancer – but if we do not utilise these tools, then we have a much greater chance of missing something requiring further investigations.

Many referrals return with a benign diagnosis - such as a cyst, tonsil stone, enlarged thyroid, enlarged lymph node, lichen planus, keratosis - but even these false alarms will build confidence in detecting and referring any abnormalities or changes. Early detection, when the soft tissue abnormality is less than 2cm with no spread to the regional nodes or metastases (stage I) significantly increases the 5-year survival rate to around 85%, compared to only 10% when detected later at stage IV.[3]

Many clinicians worry about alarming patients with the 'C-word', however many patients very much welcome discussion and reassurance. In my experience, most patients are at ease during the discussions and are genuinely impressed that we do it. A few have been a little apprehensive, some have had friends or relatives sadly lose their battle with throat or tongue cancer, so although perhaps more anxious than the next patient, they too are very appreciative of the conversations and being screened.

Conclusion

The profession needs to work harder to bridge the gap between carrying out mouth cancer screening and raising awareness through educating and communicating with patients. This would naturally improve rates of raising awareness and ultimately save more lives. However, more research is needed to support this.

The bottom line is: **If in doubt: always refer.**

Top tips for screening

What are we feeling for?

- Lymph nodes – check the soft tissues of the neck - submental region, submandibular region, then down the jugular chain to the supra-clavicular fossa noting any asymmetry in size or texture; are they mobile or firm and bound down?
- Raised area in the floor of the mouth
- Changes in texture in any area of the mouth

What are we looking for?

- A non-healing ulcer that has been present for more than three weeks
- A white, red or speckled area
- Loose teeth not related to periodontal disease

What are we asking the patient?

- Have you experienced any changes to your voice, such as unexplained hoarseness that has lasted more than three weeks?
- Do you ever have a feeling of having something stuck in your throat?
- Do you have any difficulty chewing, swallowing or moving your jaw?
- Do you have any numbness of the lips or tongue?

Suggestions for building clinical confidence:

- Practice your extra-oral and intraoral examination techniques on colleagues.
- Make the examination flow within your appointment. Following checking a patient's smoking and alcohol status, discuss risk factors for mouth cancer and advise them that part of their appointment includes mouth cancer screening.
- Patients truly believe that they have not been screened before, so be cautious of inadvertently reinforcing this thought.
- Have mouth cancer awareness leaflets available to give to patients to encourage them to carry out regular self-checks at home.

Author: Ashley qualified as a dental therapist from Kings College, London in 2017. She has worked in general and specialist practices, focusing predominantly on treating periodontal diseases. Having identified and referred both malignant and potentially malignant soft tissue abnormalities, her experience highlights the importance of encouraging patients, and the general public, to self-screen for mouth cancer.

Contact: ashley.sudlow@hotmail.co.uk

References

1. Mouth Cancer Foundation. Mouth Cancer Facts and Figures [Internet]. Weybridge: Mouth Cancer Foundation; [updated 2025 January; cited 2025 January 17]. Available from: https://www.mouthcancerfoundation.org/mouth-cancer-facts-and-figures/
2. Brocklehurst P, Pemberton MN, Macey R, Cotton C, Walsh T, Lewis MAO. Comparative accuracy of different members of the dental team in detecting malignant and non-malignant oral lesions. *Br Dent J.* 2015; **218**:525–529. https://doi.org/10.1038/sj.bdj.2015.344
3. Lewis MAO. Mouth cancer: presentation, detection and referral in primary dental care. *Br Dent J.* 2018; **225(9)**:833–840. https://doi.org/10.1038/sj.bdj.2018.931

Cite this article:

Sudlow A. Mouth cancer screening. If in doubt…always refer. Dental Health 2025;**64(2)**:24-28. https://doi.org10.59489bsdht156.

STUDENT PAPER

BY GUY WRIGHT

PATHOGENESIS AND ORAL IMPLICATIONS OF HIV

ABSTRACT

Human Immunodeficiency Virus (HIV) is the causative agent of acquired immune deficiency syndrome (AIDS). The virus was first identified in relation to numerous cases of rare opportunistic infections at the start of an historic epidemic, which resulted in 40.[4] million deaths.[1,2] As recently as 2022, HIV was responsible for 630,000 deaths alone.[2,3] Currently, an estimated 39 million people are living with HIV (PLWH) globally, with a population of 113,500 localised to the UK. In Scotland, there are an estimated 6,761 PLWH, where successful uptake of preventative measures, such as testing and pre-exposure prophylaxis (PrEP), have resulted in changing demographics for HIV diagnoses, including a 49% prevalence of heterosexually acquired cases.[4] HIV's virulence is caused by its destruction of an individual's immune coordinating cells, resulting in immunodeficiency. An influx of opportunistic infections occurs and, without sufficient treatment, will continue until immune function is exceptionally limited or characteristic infections manifest AIDS.[5]

Background

HIV is a retrovirus of the Lentivirus genus, specialised by a ribonucleic acid (RNA) genetic core, and extended periods between initial infection and true disease manifestation.[6,7] HIV commonly manifests orally, with ulceration and pharyngeal inflammation observed even in its earliest stage - the Acute Retroviral Syndrome (ARS).[8] These symptoms can be commonly mistaken for mononucleosis, allowing HIV to continue undetected before becoming dormant - a trait characteristic of lentiviruses.[5,8-10] These manifestations can be indicative of health status, disease progression or warrant referral in the undiagnosed individual. Diagnosis based solely on the presence of oral soft tissue abnormalities is impossible, but can signpost towards further investigations.[11-13]

AIDS increases the frequency and severity of opportunistic infections, greatly diminishing the patient's general health. Oral soft tissue abnormalities vary significantly from those observed in well managed infections.[12] Antiretroviral therapy (ART) allows for effective, lifelong control of the virus, preventing development of AIDS in most patients.[14] This picture is not universal, as HIV is a far-reaching disease with prevalence in all major populations, thus management varies between different countries, their development level, ability to counteract the disease and its spread. Treatment is more accessible in countries such as the UK, and many patients here live in an untransmissible, undetectable state. The United Nation AIDS commission (UNAIDS) aims to end AIDS, as a public health threat, by 2030, after which progression to AIDS will be much rarer.[15]

Transmission

HIV's relatively high transmissibility occurs in the exchange of infected bodily fluids or the creation of a fomite, used by uninfected persons. The commonest route for this is via unprotected sex, with multiple modulators increasing an individual's risk, with penetrative anal sex representing a higher risk of transmission than oral or vaginal sex, regularity, the use of prophylactic agents (PrEP and PeP) and the number of sexual partners an individual may have.[16-17] Social mindset has moved towards protection and regular testing, therefore other means of transmission may become more frequent, including use of an HIV contaminated needle, reception of contaminated blood products or organs, perinatally, or other activities involving blood and breakage of the skin barrier.[16] Transmissibility changes with the virulence of a person's infection. Individuals taking ART can live in an 'undetectable' state, where viral load (quantity of viral units per ML of blood) is below 200 units per ML, thus preventing or reducing risk of transmission through sexual means, fomite use, pregnancy and breastfeeding.[16,18-19]

Pathogenesis

Once transmitted, the virus targets host cells with CD4+ receptors, binding to co-receptors CCR5 or CXCR4, diversifying the virus' infective range.[20-22] Primarily, T-helper lymphocytes are targeted which are responsible for immune coordination through B cell and cytotoxic T cell activation. Monocytes, macrophages and dendritic cells, which identify pathogens and activate immune response, are also affected.[23] Once bound to co-receptors, the virus fuses with the cell membrane, injecting viral genetic material and enzymes to commence replication.[20-22] Viral reverse transcriptase integrates genetic material into host cells, forcing production of viral proteins and generating new viral units, which occurs until the cell form is disrupted, initiating cell death. Presence of these CD4+ cells when compared to detectable viral units in a blood sample can denote the stage of a patient's

infection (CD4+ count and viral load), and their general health while living with HIV.

Viral load and CD4+ count undulate throughout the three main phases of infection. Viral assault is strongest in the acute phase, as it moves to sites of highest CD4+ concentration, such as the lymph nodes.[20-21] Here, CD4+ count and viral load have a negative correlation, as the body is yet to develop antibodies against HIV, producing immunodeficiency where viral replication cannot be controlled.[5,8] For a third of patients with HIV, this manifests with ARS, marking the point of highest transmissibility outside of AIDS, but also the point of highest response to ART. Acute infection ends once HIV-antibodies can be detected, following a process called seroconversion. Here, viral load and CD4+ count plateau as replication is slowed to a rate akin to dormancy, allowing for immune recovery. This is characteristic of the chronic phase, where viral symptoms are unlikely, yet replication is continued, thus opportunistic infections become more prevalent.[5] Over an average of 2-10 years at this plateau, viral load will spike causing full immunodeficiency, resulting in AIDS, the disease's final phase.[5, 20-21,24]

Populations

Statistically, HIV is most prevalent among specific populations, many of which are affected not only by HIV, but also pre-existing marginalisation and stigmatisation. Prevalence is highest among: transgender persons (9.3%); men who have sex with men (MSM) (7.7%); individuals using injectable drugs (5%); sex workers (3%); and prison populations (1.3%).[2] Many of these groups are disadvantaged and affected by societal stigma surrounding their existence; compounding stigma relating to HIV status can affect many other aspects of life, including access to dental care.[25-26] Other issues facing such communities can further complicate disease progression, transmissibility and responsiveness to ART, and hamper oral health by preventing effective maintenance.

There are specific routes through which HIV cannot be transmitted including saliva, sweat or bodily waste. HIV is not a droplet infection, and so unless these products are contaminated with infected blood, modes of transmission such as non-sexual bodily contact, kissing or shared water/air are not viable.[27] These methods can be implicated for transmission with an exceptionally high viral load, or a local defect exposing blood/allowing viral entrance.[28] Kissing is not normally a viable route for transmission; however, sores, profuse gingivitis or ulcers may allow for viral interaction with a non-infected bloodstream.[28-29] ART can reduce patient viral load, bringing them into untransmissible range, however oral soft tissue abnormalities may appear despite treatment, increasing risk of transmissibility.[29]

Clinical picture and oral manifestations

Approximately 50% of PLWH will encounter some form of head and neck manifestation, from opportunistic infection, neoplasia or as a side effect of viral proliferation.[12,30] Their irregularity marks a sign of disease presence, activity or response to treatment, occurring from immunodeficiency, dysbiosis or malignancy. ART can reduce soft tissue manifestations; however, recurrence rates remains high, and receptiveness to treatment varies. Oral manifestations may be in the form of painful ulcers, and hamper masticatory ability and dental aesthetics. The management of PLWH therefore focuses on prevention, screening and ensuring soft tissue abnormalities do not develop without acknowledgement or treatment. Their appearance varies, and subsequently they have been classified not by their type, but their likely association with HIV (Table 1).[11-12, 30-31]

Table 1: **Revised Classification of oral conditions associated with HIV** [30,31]

Classification	Condition	Examples
Conditions **strongly** associated with HIV infection[30,31]	Oropharyngeal candidosis (OPC)	Pseudomembranous Chronic hyperplastic Erythematous Angular cheilitis
	Hairy leukoplakia	
	Periodontal diseases	Gingivitis Periodontitis Necrotising ulcerative gingivitis and periodontitis Linear gingival erythema
	Neoplasm	Kaposi's sarcoma Non-Hodgkin's lymphoma
Conditions **less** frequently associated with HIV infection [30,31]	Ulceration	Oropharyngeal Aphthous
	Salivary gland diseases	Xerostomia Swelling
	Viral infection	Herpes simplex Human papillomavirus Varicella-zoster
Conditions **possibly** associated with HIV infection [30,31]	Bacterial infections	Tuberculosis Actinomycosis Enterobacter cloacae
	Fungal infection other than candidosis	Histoplasmosis Mucormycosis Cryptococcus
	Hyperpigmentation	
	Neurological disorders	Facial palsy Trigeminal neuralgia
	Infections of the head and neck structure	Osteomyelitis Sinusitis Cellulitis
	Non-specified neoplasms	Squamous cell carcinoma

The soft tissue abnormalities within this classification appear as early as the acute infection, however more frequently they are symptoms of viral replication in the form of ARS.[8] ARS is a febrile illness akin to infectious mononucleosis, thus differential diagnosis can be difficult, but nonetheless crucial for prognosis and success of ART.[14] ARS manifests with mucocutaneous ulceration and pharyngitis, as well as exaggerated gingivitis.[32-33] It is accompanied by fever in 80% of cases and malaise in 68%, although gastrointestinal and neurological effects, such as confusion, can be observed.[33] Many symptoms are non-specific, risking misdiagnosis, however presence within prevalent groups and neurological involvement can aid identification. The most telling sign of HIV at this stage is persistent generalised lymphadenopathy, with minimal reduction between episodes.[32-34] There are multiple causes for this, including viral infiltrate and opportunistic infection, therefore urgent referral and confirmational testing is required.

Many oral manifestations in PLWH can be attributed to opportunistic infection, occurring predominantly because of dysbiosis.[35] Certain CD4+ cells are responsible for production of managerial antibodies, enzymes and proteins which maintain the oral microbiome. Viral destruction of these cells enables organisms with pathogenic potential to proliferate, a process aggravated by modulators like CD4+ count, smoking, drug use and diet. [35-37] ART can aid in recovering the oral microbiome however regulation of an unstable culture is temperamental and oral soft tissue abnormalities remain present or recur.[35] This, combined with local risks such as xerostomia or poor oral hygiene, can generate severe forms of ongoing infections (gingivitis and periodontitis) and allow for the influx of oropharyngeal candidosis (OPC) and viral manifestations.[12,30,35,37-38] Many manifestations generated by HIV immunodeficiency have visible and symptomatic presentations hampering an individual's quality of life, dental aesthetics and oral function.

In 17-75% of cases, OPC is the most prevalent infection in PLWH and varies in its presentation, depending on the patient's immune system.[30,37-39] These include pseudomembranous candidosis (Fig. 1) , and dermatological manifestations such as angular cheilitis.[38-39] Erythematous

Figure 1: **Pseudomembranous candidosis (oral thrush). Characterised by slough overlying affected structures, that can be removed to reveal underlying erythema. Associated with burning sensation and exacerbated by spicy foods. Seen most frequently on the tongue, soft and hard palate, and uvula.**

Figure 2: **Necrotising Ulcerative Gingivitis (NUG). A bacterial infection characterised by a sudden onset of painful ulceration with an overlying grey pseudomembrane, leading to loss of interdental papilla, halitosis, fever and malaise.**

Figure 3: **Oral hairy leukoplakia. Non-neoplastic keratotic mucosal abnormality on the lateral and ventral borders of the tongue. Caused by Epstein-Barr virus within the epithelium.**

and chronic hyperplastic candidosis are also seen in those with exceptionally low CD4+ counts (below 200 cells/cu.mm). C. albicans is commonly implicated, however other fungi such as C. glabrata have been observed, demonstrating the irregularity of an oral biome without effective immune control.[30,35,38]

PLWH possess acute susceptibility to common dental issues, with periodontal diseases, caries, xerostomia and oral ulceration almost as common as OPC.[30,37] Severity varies greatly from healthy patients, as dysbiosis generates an irregular and virulent plaque biofilm with abnormal causative organisms.[30,40] These conditions are co-morbidities for one another, impeded further by a patient's oral hygiene abilities, and often depressed by external factors.[40-41] Prevalent groups, such as drug users and prisoners, may experience dental neglect where access, motivation or education are limited.[42-43] These issues combined, generate acute forms of conditions such as necrotising ulcerative gingivitis (NUG) (Fig.2) and periodontitis (NUP) and linear gingival erythema, as well as carious infection, and often indicate progression to AIDS. [11,13,30,37,40-41]

Finally, dysbiosis and immunosuppression can result in resurgence of or co-infection from other viruses, commonly the herpes family, papillomavirus and Epstein Barr virus (EBV).[30,35,37] The latter is responsible for formation of the oral hairy leukoplakia (OHL) (Fig.3) sometimes evident among

■ ***Figure 4:*** **Kaposi's Sarcoma. This proliferative endothelial cell condition is caused by human herpes virus type 8 and is strongly associated with underlying HIV infection. It presents as pigmented papules which darken with maturity.**

PLWH with CD4+ counts approaching that of AIDS diagnosis. OHL recedes with successful ART, is non-malignant and treated with antiviral medication.[30,44-45] However, PLWH are susceptible to neoplasms from viral intervention or through lymphocytopenia allowing abnormal cell proliferation.[46] Therefore, persistence of EBV or herpes in HIV patients can generate malignancy without management. This is the case with Kaposi's sarcoma (Fig.4) and herpes virus; however, appearance of these soft tissue abnormalities is closely tied to a patient's response to ART. Detection of neoplasms in PLWH indicates disease progression and warrants urgent referral.[11,45]

Anti-retroviral therapy

There are no universal cures for HIV, nor is there an effective vaccine, however treatment has been streamlined significantly in the epidemic's forty-year lifespan. Nowadays, a combination therapy is used to treat HIV, aiming to suppress viral replication whilst reducing risk of resistance.[14,47] Highly Active Antiretroviral Therapy (HAART) consists of three or more drugs, each designed to act on a different viral function and deconstruct the replicatory process, which consistently lowers viral load. Seven drug classes are available for HAART, with one enhancement drug to increase uptake.[48] Commonly used are the nucleoside (NRTIs) and non-nucleoside reverse transcriptase inhibitors (NNRTIs), which prevent viral DNA and viral polymerase formation respectively.[14] The regimen is selected from six drug classes, including aforementioned NRTIs and NNRTIs, as well as protease inhibitors, integrase strand transfer inhibitors, fusion inhibitors and chemokine receptor antagonists. Selection of these drugs creates a therapy specific to patient needs, which often considers: drug interactions; resistance; delivery; convenience; and histories such as the potential for pregnancy or disease.[14,47]

When replication is prevented, viral load reduces significantly, allowing immune recovery.[14] Treatment is labelled successful when patients reach viral suppression (<200 viral copies per ml blood), at which point their transmissibility is limited (undetectable=untransmissible).[14,49] Viral load and CD4+ count is monitored throughout treatment to track viral suppression however, the strongest outcomes are noted when HAART is started in the acute phase, allowing holistic habits to form with drug taking and recalls. Success is not uniform, with many PLWH non-respondent, or developing immune reconstitution syndrome (IRIS). Here, latent opportunistic infection generates an overt inflammatory response following CD4+ improvement, with oral manifestations including aphthous-like ulceration, however these change with the pathogen.[50] Deterioration or IRIS are indicators of a drug regimen's failure and may require altered medication course.

When successful, a HAART regimen can reduce the risk of oral disease and neoplasm, however the majority of PLWH still present with oral conditions, mostly periodontal diseases.[31,41,51] Risk of oral manifestation increases with long term HAART use, where salivary flow declines, which can be particularly problematic in ageing PLWH, where polypharmacy and co-morbidity further complicate oral health.[51-53] The drugs used in HAART have a multitude of potential oral side effects, generated by individual drugs and as interactions with other antiretrovirals e.g. erythema multiforme, parotid swelling, xerostomia and neurological effects.[14,53] Oral implications of HIV therefore must be considered prospectively, given susceptibility to oral abnormalities only increases with treatment period, thus dental professionals are in a perfect position to monitor disease status and watch for non-responsiveness to treatment.

Dental treatment considerations

Clinicians treating PLWH should have an awareness of the potential clinical presentations and understand the implications of their presence.[30] Many oral manifestations are common regardless of a strong ART response. However, neoplasms and worsening periodontal diseases may indicate progression of disease or a non-responsiveness to ongoing therapy.[11,30,37] Dependence upon recalls places dental professionals in the perfect position to screen, report and treat before the problem becomes critical. This should be accompanied by meticulously updated histories, regarding patient CD4+ count and viral loads, as well as ART regimes and drug choices.[12,45] Awareness of drug interactions and potential side effects are necessary: PLWH are placed in a state of polypharmacy, which can exacerbate xerostomia, as well as interact with local anaesthetics.[45,54]

Many prevalent populations for HIV may suffer external difficulties affecting attendance, hygiene routine and oral health, therefore treatment should be inclusive and cater towards these factors.[42-43,54-55] Xerostomia, dysbiosis and immunodeficiency make for a high-risk oral environment, with the potential to magnify issues that healthier patients do not encounter easily.[35,55] Therefore, frequent review and meticulous oral hygiene and diet analysis is indicated, targeting all facets including xerostomia and plaque removal, to ease pressure on the oral immune complex.[54-55]

Stigma has surrounded HIV since its discovery, with misinformation spread from the outset.[56] This has had a disastrous effect on accessibility of treatment for PLWH, many of whom may have dental fear, anxiety, medical trauma, or query the protection of their personal data.[45,55-56] Having open conversations about the oral implications of HIV

may be difficult in patients fearful of stigma, but nonetheless important for attendance and success of a treatment plan in immunosuppressed patients.[55-56] Crucially, it is deemed unethical to reject treatment of PLWH, unless invasive treatment is required where platelet (below 50,000) and neutrophil counts (lower than 1000) are at unacceptable levels, at which point antibiotic cover and multidisciplinary consultations are indicated.[45,56-57] The risk of transmission is low and can be inhibited with use of Post Exposure Prophylaxis.[55] Treatment rejection should occur only for the patient's best interests, to prevent post-operative complication or treatment failure. At this point, consultation with the patient's leading physician and pre-operative blood work will aid in treatment decisions.[45,55,57]

Discussion

The oral implications of HIV are severe, and observable throughout a patient's infection.[30] There is credence to say dental professionals are under-utilised in the effort to screen for HIV, despite oral appearances of ARS, and the potential for preventing misdiagnosis.[58,59] A growing opinion states that dental clinics could be used to catch undiagnosed cases particularly in prevalent populations, given 25% of the UK's PLWH are undiagnosed, risking transmission to other people and untreated disease progression. This is a controversial innovation and is supported widely by the newer generation of dental professional. However, oral care remains one of the largest unmet health needs for PLWH, and so importance should be placed on the role dental clinicians could play in the overall approach to treatment.[25,58-59] Offering rapid testing, integrating screening of oral soft and hard tissue abnormalities into dental check-ups, and improving HIV awareness in dental clinicians may aid in suppressing stigma, reducing transmission and foster a stronger clinician-client relationship for those already living with HIV.[25,58,60]

Conclusion

Infection with HIV results in an immunodeficient state, acting to unsettle the oral equilibrium, and degenerate processes which maintain microflora and prevent dysplasia. These effects result in a medically compromised patient, with high potential for opportunistic infection, and the exacerbation of existing oral conditions that complicate oral care. The same complex can be observed to a lesser extent in stable patients on ART, therefore the risk for oral complication in PLWH is always significant. The most frequently observed oral manifestations are periodontal diseases, candidosis, xerostomia and OHL, many of which have a temperamental response to treatment and are multi-factorial, worsened by systemic/local factors such as plaque control and drug use. Many HIV-prevalent groups are affected by such external factors, that worsen oral volatility and interfere with personal maintenance. Additionally, ART requires patients to frequently ingest medications with potential for oral side effects and interactions.

Much of this paper's research body is review based, mirroring the picture of available HIV research in dentistry. However, it is evident that HIV frequently implicates the mouth and so treatment of PLWH relies upon diligence from the clinician and an awareness as to what formation of an oral abnormality means for disease status and general health. Despite these concerns, dental care remains one of the largest unmet health needs for PLWH, with multiple causative factors including stigma from the medical community. This issue can be tackled internally with further education, and a call for health boards to set up directives that may prevent unjust rejection of treatment. Involvement of dental professionals in the screening of HIV cases could vastly improve access of dental care for PLWH and prevent misdiagnosis. Given the significant oral implications of HIV, there is an under-utilised niche in the recall-basis of dentistry that could improve detection of undiagnosed cases, simultaneously improving dental input into HIV care. This requires trial-based research to become more than a debated issue, however it brings potential for a necessary improvement in HIV-awareness and education of clinicians.

Author: Guy Wright is a fourth-year BSc Oral Health Sciences student at the University of Edinburgh. Guy has academic interests in the links between dentistry and sexual health, and this paper is based on his third-year assessment.

Contact: guyw469@gmail.com

Images courtesy of Professor M.A.O Lewis, Emeritus Professor Cardiff University

References

1. HIV.gov [Internet]. 7+ screens]. Available from: https://www.hiv.gov/hiv-basics/overview/history/hiv-and-aids-timeline/#year-1984 [Accessed 24 January 2024].
2. UNAIDS. Global HIV and AIDS statistics-fact sheet [Internet]. 2023. Available from: https://www.unaids.org/en/resources/fact-sheet#:~:text=Global%20HIV%20statistics,AIDS%2Drelated%20illnesses%20in%202022 [Accessed 29 January 2024].
3. Max Rother, Hannah Ritchie. Our world in data. [Internet]. 2023. Available from:https://ourworldindata.org/hiv-aids#:~:text=Globally%2C%20around%201.5%25%20of%20deaths,are%20caused%20by%20HIV%2FAIDS. https://www.unaids.org/en/resources/fact-sheet#:~:text=Global%20HIV%20statistics,AIDS%2Drelated%20illnesses%20in%202022 [Accessed 8 February 2024].
4. Terrance Higgins Trust. HIV statistics 2024. Available from: https://www.tht.org.uk/hiv/about-hiv/hiv-statistics [Accessed 24 January 2025].
5. HIV info.NIH.gov. The stages of HIV infection [Internet]. 2021 Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/stages-hiv-infection#:~:text=People%20with%20chronic%20HIV%20infection,this%20stage%20for%20several%20decades. [Accessed 31 January 2024].
6. Schulman JS. Healthline. What is a Retrovirus? 2019 Available from: https://www.healthline.com/health/what-is-a-retrovirus#takeaway [Accessed 1 February 2024].
7. Durand S, Cimarelli A. The inside out of lentiviral vectors. *Viruses.* 2011;**3(2)**: 132-159. doi: 10.3390/v3020132
8. Mindel A, Tenant-Flowers M. ABC of AIDS: Natural history and management of early HIV infection. *BMJ.* 2001; **322(7297)**:1290. doi: https://doi.org/10.1136/bmj.322.7297.1290
9. Terrance Higgins trust. Symptoms of HIV [Internet]. 2022 Available from: https://www.tht.org.uk/hiv-and-sexual-health/about-hiv/symptoms-hiv#:~:text=Seroconversion%20is%20a%20sign%20that,and%20give%20a%20positive%20result. [Accessed 3 February 2024].
10. AIDSmap. What are the symptoms of seroconversion? [Internet]. Available from: https://www.aidsmap.com/about-hiv/what-are-symptoms-seroconversion [Accessed 3 February 2024].

11. Indrastiti RK, Wardhany II, Soegyanto AI. Oral manifestations of HIV: Can they be an indicator of disease severity? A systematic review. *Oral Dis.* 2020;**26(S1)**: 133-136. https://doi.org/10.1111/odi.13394
12. Weinert M, Grimes RM, Lynch DP. Oral manifestations of HIV infection. *Ann Int Med.* 1996;**125(6)**:485-496. Available from: https://doi.org/10.7326/0003-4819-125-6-199609150-00010
13. Saini R. Oral lesions: A true clinical indicator in human immunodeficiency virus. *J Nat Sci Biol Med.* 2011;**2(2)**:145-50. doi: 10.4103/0976-9668.92316
14. Eggleton JS, Nagalli S. Highly Active Antiretroviral Therapy (HAART). Statpearls [Internet]. 2023Available from: https://www.ncbi.nlm.nih.gov/books/NBK554533/ [Accessed 13 February 2024].
15. UNAIDS. High level meeting on AIDS. End inequalities. End AIDS [Internet]. 2021 Available from: https://hlm2021aids.unaids.org/?_gl=1%2Abtcowf%2Aga%2AODk5MzY5MDQxLjE3MDY1MzQ0NzE.%2A_ga_T7FBEZEXNC%2AMTcwODE4NzE3Mi43LjEuMTcwODE4NzI4OC41LjAuMA. [Accessed 17 February 2024].
16. Shaw GM, Hunter E. HIV transmission. *Cold Spring Harb Perspect Med.* [Internet]. 2012;**2(11)**:47. Available from: 10.1101/cshperspect.a006965
17. Centre for Disease Control and Prevention. How HIV spreads. [Internet]. 2022 Available from: https://www.cdc.gov/hiv/basics/hiv-transmission/ways-people-get-hiv.html [Accessed 19 February 2024].
18. Eisinger RW, Dieffenbach CW, Fauci AS. HIV viral load and transmissibility of HIV infection: undetectable equals untransmittable. *JAMA* 2019; **321(5)**:451–452. Doi: 10.1001/jama.2018.21167
19. Centers for Disease Control and Prevention. HIV Treatment as Prevention [Internet]. 2023. Available from:https://www.cdc.gov/hiv/risk/art/index.html#:~:text=This%20is%20called%20viral%20suppression,called%20an%20undetectable%20viral%20load. [Accessed 19 February 2024].
20. Naif HM. Pathogenesis of HIV Infection. *Infect Dis Rep.* 2013; **5(Suppl 1)**:e6. doi: 10.4081/idr.2013.s1.e6
21. Weber J . The pathogenesis of HIV-1 infection. *Brit Med Bulletin*. 2001; **58 (1)**:61–72. https://doi.org/10.1093/bmb/58.1.61
22. Maartens G, Celum C, Lewin SR. HIV infection: epidemiology, pathogenesis, treatment and prevention. *The Lancet*. 2014; **384(9939)**: 258-271. https://doi.org/10.1016/S0140-6736(14)60164-1
23. Alberts B, Johnson A, Lewis J, et al. Molecular biology of the cell [Internet]. 4th edition. New York: Garland science; 2002 Available from: https://www.ncbi.nlm.nih.gov/books/NBK26827/#:~:text=Helper%20T%20cells%20are%20arguably,to%20kill%20infected%20target%20cells. [Accessed 22 February 2024].
24. Battistini Garcia SA, Guzman N. Acquired Immune Deficiency Syndrome CD4+ Count. StatPearls [Internet]. 2023 Available from: https://www.ncbi.nlm.nih.gov/books/NBK513289/#:~:text=CD4%20cell%20count%20is%20a,the%20antiretroviral%20treatment%20(ART). [Accessed 25 February 2024].
25. Fox JE, Tobias CR, Bachman SS, Reznik DA, Rajabiun S, Verdecias N. Increasing access to oral health care for people living with HIV/AIDS in the U.S.: baseline evaluation results of the Innovations in Oral Health Care Initiative. *Public Health Rep.* 2012; **127(Suppl 2)**:5-16. https://doi.org/10.1177/00333549121270S203
26. Parish C, Siegel K, Pereyra M, Liguori T, Metsch L. Barriers and facilitators to dental care among HIV-Infected adults. *Spec Care Dent.* 2015; **35(6)**:294-302. https://doi.org/10.1111/scd.12132
27. HIV.gov. How is HIV transmitted? [Internet]. 2022. Available from: https://www.hiv.gov/hiv-basics/overview/about-hiv-and-aids/how-is-hiv-transmitted/ [Accessed 26 February 2024].
28. Younai FS. Oral HIV transmission. *J Cal Dent Assoc.* 2001;**29(2)**:142-147. https://doi.org/10.1080/19424396.2001.12223159
29. Lustosa de Souza BK, Sorgatto Fae D, Lemos CAA, Verner FS, Machado RA, Ortega RM, Nascimento De aquino S. Associated oral manifestations with HIV southeastern Brazilian patients on antiretroviral therapy. *Braz J Otorhinolaryngol.* 2023 **89(3)**: 425-431. https://doi.org/10.1016/j.bjorl.2023.01.001
30. Lomelí-Martínez SM, González-Hernández LA, Ruiz-Anaya AJ, Lomelí-Martínez MA, Martínez-Salazar SY, Mercado González AE et al. Oral manifestations associated with HIV/AIDS patients. *Medicina* (Kaunas). 2022; **58(9)**:1214. doi: 10.3390/medicina58091214
31. Challacombe S. Revised classification of HIV associated oral lesions. *Br. Dent J.* 2022; **233**: 940-941. https://doi.org/10.1038/s41415-022-5306-3
32. Chin T, Hicks C, Samsa G, McKellar M. Diagnosing HIV infection in primary care settings: missed opportunities. *AIDS Patient Care STDS*. 2013;**27(7)**:392-397. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3704080/
33. Cowan EA, McGowan JP, Fine SM, et al. Diagnosis and Management of Acute HIV [Internet]. Baltimore (MD): Johns Hopkins University. 2021https://www.ncbi.nlm.nih.gov/books/NBK563020/ [Accessed 3 March 2024].
34. Nag D, Dey S, Nandi A, Bandyopadhyay R, Roychowdhury D, Roy R. Etiological study of lymphadenopathy in HIV-infected patients in a tertiary care hospital. *J Cytol.* 2016; **33(2)**:66-70. doi: 10.4103/0970-9371.182518
35. Li S, Su B, He QS, Wu H, Zhang T. Alterations in the oral microbiome in HIV infection: causes, effects and potential interventions. *Chin Med J* (Engl). 2021; **134(23)**:2788-2798. 24. doi: 10.1097/CM9.0000000000001825
36. Hernández-Santos N, Huppler AR, Peterson AC, Khader SA, McKenna KC, Gaffen SL. Th17 cells confer long-term adaptive immunity to oral mucosal Candida albicans infections. *Mucosal Immunol.* 2013 **6(5)**:900-910. DOI: 10.1038/mi.2012.128
37. Pakfetrat A, Falaki F, Delavarian Z, Dalirsani Z, Sanatkhani M, Zabihi Marani M. Oral manifestations of human immunodeficiency virus-infected patients. *Iran J Otorhinolaryngol.* 2015; **27(78)**:43-54. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4344974/
38. Shekatkar M, Kheur S, Gupta AA, Arora A, Thirumal Raj A, Patil S et al. Oral candidiasis in human immunodeficiency virus-infected patients under highly active antiretroviral therapy. *Disease-a-Month.* 2021;**67(9)**:101169. https://www.sciencedirect.com/science/article/pii/S0011502921000444
39. Thompson GR 3rd, Patel PK, Kirkpatrick WR, Westbrook SD, Berg D, Erlandsen J et al. Oropharyngeal candidiasis in the era of antiretroviral therapy. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2010;**109(4)**:488-495. 20. doi: 10.1016/j.tripleo.2009.11.026
40. Noguera-Julian M, Guillén Y, Peterson J, Reznik D, Harris EV, Joseph SJ et al. Oral microbiome in HIV-associated periodontitis. *Medicine*. 2017; **96(12)**:e5821. doi: 10.1097/MD.0000000000005821
41. Mataftsi M, Skoura L, Sakellari D. HIV infection and periodontal diseases: an overview of the post-HAART era. Oral Dis. 2010;17(01):13-25. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1601-0825.2010.01727.x
42. Shekarchizadeh H, Khami MR, Mohebbi SZ, Ekhtiari H, Virtanen JI. Oral health of drug abusers: a review of health effects and care. *Iran J Publ Health.* 2013; **42(9)**:929-40. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4453891/
43. Heidari E, Dickinson C, Wilson R, Fiske J. Oral health of remand prisoners in HMP Brixton, London. *Br Dent J.* 2007; 202(E5). https://doi.org/10.1038/bdj.2007.32
44. O'Brien K, Qudairat E, Napier S. Oral hairy leukoplakia in an immunocompetent patient: a case report. *Oral Surg.* 2016;**10(4)**: 243-247. https://doi.org/10.1111/ors.12254
45. Newman MG, Laughter L, Essex G, Satheesh E. *Pathology and Management of Periodontal Problems in Patients With Human Immunodeficiency Virus Infection* In: Newman, Michael G., DDS, FACD. Newman and Carranza's Clinical Periodontology for the Dental Hygienist. Missouri: Elsevier; 202. 28. P. 342-351. Available from: https://www.clinicalkey.com/student/content/book/3-s2.0-B9780323708418000285
46. Yarchoan R, Uldrick TS. HIV-associated cancers and related diseases. *N Engl J Med.* 2018; 15;**378(11)**:1029-1041. doi: 10.1056/NEJMra1615896
47. HIVinfo.NIH.gov. HIV treatment [Internet]. 2021. Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-treatment-basics [Accessed 11 March 2024].
48. NICE. BNF, HIV infection [Internet]. 2024 Available from: https://bnf.nice.org.uk/treatment-summaries/hiv-infection/ [Accessed 11 March 2024].
49. Centers for disease control and prevention. HIV treatment as prevention [Internet]. 2023. Available from: https://www.cdc.gov/hiv/

risk/art/index.html#:~:text=HIV%20medicine%20can%20even%20make,can%20do%20to%20stay%20healthy. [Accessed 11 March 2024].

50. Thapa S, Shrestha U. Immune reconstitution inflammatory syndrome. Statpearls [Internet]. Treasure Island (FL):Statpearls publishing; Available from: https://www.ncbi.nlm.nih.gov/books/NBK567803/#:~:text=Immune%20reconstitution%20inflammatory%20syndrome%20(IRIS,active%20antiretroviral%20therapy%20(HAART).
51. Maloth S, Shrinivas TR, Krishna Pramod B, Nagarathna PJ. Prevalence of oromucosal lesions in HIV positive patients receiving haart - A prospective clinical study. *J Family Med Prim Care.* 2020; **9(9)**:4821-4825. doi: 10.4103/jfmpc.jfmpc_881_20
52. Back D, Marzolini C. The challenge of HIV treatment in an era of polypharmacy. *J Int AIDS Soc.* 2020; **23(2)**:e25449. https://doi.org/10.1002/jia2.25449
53. Nittayananta W, Talungchit S, Jaruratanasirikul S, Silpapojakul K, Chayakul P, Nilmanat A, Pruphetkaew N. Effects of long-term use of HAART on oral health status of HIV-infected subjects. *J Oral Pathol Med.* 2010;**39(5)**:397-406. https://doi.org/10.1111/j.1600-0714.2009.00875.x
54. Mercante DE, Guarisco E, Lilly EA, Rao A, Treas K, Beall CJ et al. Current oral hygiene and recreational behavioral trends in HIV disease. *Clin Exp Dent Res.* 2023;**9(4)**:721-732. https://doi.org/10.1002/cre2.762
55. Ross KA, Miller CS, Rhodus NL, Stoopler ET, Treister NS. *AIDS, HIV Infection, and Related Conditions In Kerr,* A. Ross, DDS, MSD. Little and Falace's Dental Management of the Medically Compromised Patient, Tenth Edition [Internet]. St. Louis, Missouri : Elsevier; 2024.Pp. 278-296. Available from: https://www.clinicalkey.com/student/content/book/3-s2.0-B9780323809450000188
56. Yuvaraj A, Mahendra VS, Chakrapani V, Yunihastuti E, Santella AJ, Ranauta A, Doughty J. HIV and stigma in the healthcare setting. *Oral Dis.* 2020;**26(s1)**:103-111.10. https://doi.org/10.1111/odi.13585
57. Samuelson , Downey C. *Patients with Special Needs.* In: Stefanace, Stephen J., DDS, MS. Diagnosis and treatment planning in dentistry. St Louis, Missouri: Elsevier; 2024. Pp.310-336. Available from: https://www.clinicalkey.com/student/content/book/3-s2.0-B978032380975700013X
58. Santella A, Conway D, Watt R. The potential role of dentists in HIV screening. *Br Dent J.* 2016; **220**: 229-233. https://doi.org/10.1038/sj.bdj.2016.172
59. Santella AJ, Leuwaisee P, Davide SH, Horowitz H, Krishnamachari B. Oral rapid HIV testing in the dental setting: Experiences from three dental hygiene clinics. *Can J Dent Hyg.* 2019;**53(2)**:125-129. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7533818/#:~:text=Oral%20rapid%20HIV%20testing%20(ORHT,however%2C%20to%20be%20systematically%20collected.
60. Mulligan R, Seirawan H, Galligan J, Lemme S. The effect of an HIV/AIDS educational program on the knowledge, attitudes, and behaviors of dental professionals. *J Dent Educ.* 2006;**70(8)**:857-868. https://pubmed.ncbi.nlm.nih.gov/16899445/T7FBEZEXNC%2AMTcwODE4NzE3Mi43LjEuMTcwODE4Nzl4OC41LjAuMA. [Accessed 17 February 2024].

Cite this article:

Wright G. Pathogenesis and oral implications of HIV. *Dental Health* 2025;**64(2)**:29-35. https://doi.org10.59489bsdht154

Philips launches most innovative Sonicare toothbrush with adaptive technology

Philips has launched its most innovative Sonicare toothbrushes to date, incorporating next-level technology to revolutionise oral care. Studies show that the brushes 62,000 sonic movements per minute[1] enable them to remove up to 20 times more biofilm[2], in hard to reach areas, compared with a manual toothbrush, ensuring a superior clean.

The new Sonicare 5000-7000 range, consisting of three brushes, showcases adaptive brushing technology. This ensures an optimal brushing experience regardless of brushing technique. Philips's Research and Development team has engineered a new drivetrain, which automatically adjusts cleaning around the posterior teeth where brushing performance can be compromised. The brush provides precision feedback when it encounters resistance, regulating movement to ensure optimal performance.

The adaptive brushing feature is coupled with dynamic sensors, thanks to the new internal mechanical structure of the drivetrain's resonator system. The resonator system within the drivetrain responds to pressure applied on the brush head by adjusting amplitude, resulting in minimised brush movements. Notably, this technology also makes it the quietest Sonicare model to date, ensuring a comfortable and peaceful brushing experience.

New patented optical pressure sensing technology, significantly enhances the brush's ability to measure applied force. The brush captures immediate measurements and alerts users through lights and vibrations if they need to adjust their brushing technique. The pressure sensing technology assesses light reflection, with less light indicating more force, a superior method compared to traditional magnetic field sensors

Sustainability has been a key focus for Philips in developing this toothbrush. They have employed innovative laser welding techniques to create a robust and durable brush that lasts longer. The handle can be disassembled for repair, and batteries can be replaced, making it a more environmentally friendly option. Additionally, the brush is more energy-efficient, featuring a high-performance battery that lasts 21 days[3] on a single charge. It has also undergone rigorous durability tests, including a 30-day runtime test, to ensure reliability and longevity. Furthermore, all Sonicare brush heads contain 70% bio-based plastic, aligning with Philips's commitment to sustainable practices.

The Sonicare App connects to the 6500 and 7100 models, offering features such as a timer, a visual progress tracker, and a personalised brushing trend dashboard. These features enhance the user experience and promote better oral hygiene habits. The 5300 Sonicare toothbrush offers superior plaque removal and whiter teeth,[4] while the 6500 brush has three modes and three intensities, and is suitable for patients with sensitive teeth and gums – the brush provides up to 200% better gum health in just two weeks.[5] Meanwhile The top-of-the-range 7100 toothbrush takes innovation to another level with four modes and three intensities. It is designed to remove ten times more plaque compared with a manual toothbrush, making it an excellent choice for those seeking the highest level of oral care. This model's advanced features ensure users receive a comprehensive and effective cleaning routine each time they brush.

For more information visit: **https://www.b2bshop.philips.com/philipsb2bstorefront/gb11-04/en_GB/GBP/login**

References

1. D001740520, Tech Memo, Strokes Per Minute, Movements Per Minute, Wimbledon PTB.
2. This document is an in-vivo study that compare the effects of the Philips Sonicare DiamondClean Prestige 9900 power toothbrush with A3 Premium All-in-One brush head versus a manual toothbrush on plaque levels and gingival healthD001679929 is a Technical memo demonstrating functional equivalence for Cairo and Triton Based PTB handles.
3. Based on two periods of two-minute brushings per day on standard mode, vs Protective Clean and Expert Clean series.
4. DRC 0790; J Clin Dent 2017;28(Spec Iss A):A1–6; D001679929 Functional Equivalency Study.
5. In Gum Health mode vs a manual toothbrush. MAH-16-0188 is a gingival Health in vivo study that compares of Plaque and Gingivitis Reduction by Philips Sonicare DiamondClean Smart Toothbrush with Premium Gum Care Brush Head and a Manual ToothbrushD001679929 is a Technical memo demonstrating functional equivalence for Cairo and Triton Based PTB handles.

PHILIPS

eCPD PAPER

BY CLAIRE MCCARTHY & SARAH MURRAY

Integrating Patient and Public Involvement in Dental Hygiene and Therapy
A Strategic Move Toward Patient-Centred Care

1½ Hours eCPD PER PAPER

AIM

To explore the concept of patient and public involvement (PPI) and its potential role within BSDHT.

LEARNING OUTCOMES

By the end of this paper, readers will:

- be familiar with the PPI framework
- be able to demonstrate how BSDHT can develop a partnership working for public benefit
- have an appreciation how of PPI fits with wider oral health strategies

LEARNING OBJECTIVES

- understand the role of PPI to improve health outcomes
- examine the PPI framework and be able to apply this to oral health initiatives

Aligned to GDC development outcome: *B*

TO TAKE THE CPD PLEASE FOLLOW THE LINK OR SCAN THE CODE:
HTTPS://WWW.SURVEYMONKEY.COM/R/DH-MAR-2025

DEADLINE FOR SUBMISSIONS 30TH APRIL 2025

ABSTRACT

Patient and Public Involvement (PPI) is a key strategy in modern healthcare, ensuring that services, research, and policies are shaped by those they affect. While PPI is well-established in medicine, nursing, and broader healthcare disciplines, its integration into dental hygiene and dental therapy remains limited. Given the profession's focus on prevention, the establishment of a dedicated PPI group presents an opportunity to align oral health resources, patient education, and public health initiatives with the needs of the communities they serve.

PPI provides a structured framework for co-developing patient-centred resources that improve engagement, adherence, and oral health outcomes. By actively involving patients in shaping oral health information, professional initiatives become more accessible, relatable, and relevant. This approach not only benefits patients but also enhances the visibility of dental hygienists and dental therapists, ensuring that the profession is recognised as a crucial component of healthcare.

Beyond patient education, PPI supports professional development by enhancing BSDHT's digital presence, improving signposting to oral health resources, and facilitating engagement with caregivers, educators, and other healthcare professionals. Strengthening these connections will allow the profession to extend its impact beyond clinical settings, influencing oral health promotion in schools, care homes, and community organisations. This article explores the benefits of PPI in advancing patient-centred care, professional recognition, and broader public health strategies within the professions of dental hygiene and dental therapy

Introduction

Patient and Public Involvement (PPI) refers to the active participation of patients, carers, and members of the public in shaping healthcare research, policies, and service delivery. This approach ensures that healthcare professionals work in partnership with the communities they serve, making services more relevant, effective, and accessible.[1] The national commitment to PPI is reflected in NHS England's Patient and Public Involvement Strategy (2021-2026), which sets out six strategic aims to ensure that patient engagement is inclusive, meaningful, and embedded across healthcare systems.[2] These aims include actively involving

a diverse range of patients, addressing equality and inclusion, fostering collaboration across healthcare partners, ensuring a positive experience for patient partners, measuring impact, and effectively communicating outcomes. The establishment of a PPI group within the British Society of Dental Hygiene and Therapy (BSDHT) aligns with these principles, providing a structured platform to ensure that patient perspectives are integrated into oral health education, service development and professional advocacy.

The term 'patients' includes current, former, and potential patients, carers, individuals who use health and social care services, and representatives of organisations advocating for these groups. The 'public' encompasses anyone who may be a future patient or recipient of public health services, such as screening programmes, weight management initiatives and smoking cessation support. Patient and Public Involvement (PPI) is becoming increasingly recognised as a crucial element in healthcare research and service delivery. This patient-centred approach ensures that services and resources developed by healthcare professionals and organisations are more aligned with the actual needs, preferences, and challenges faced by patients.[3]

Despite the increasing focus on patient-centred healthcare, research and service development have historically been conducted on patients rather than with them. Traditionally, patients have been passive subjects in research, rather than active collaborators in shaping healthcare strategies. This approach is increasingly seen as outdated, given that the ultimate beneficiaries of health research are the very individuals who have often been excluded from its design and direction. Recognising the need for change, the UK National Institute for Health Research (NIHR) has emphasised that high-quality research cannot exist without meaningful public involvement and introduced a five-year strategy aimed at strengthening patient engagement in research development, implementation, and evaluation.[4] While some areas, such as cancer research, have successfully integrated PPI into their frameworks, other fields, including oral healthcare, have yet to fully embed structured patient engagement.

The growing emphasis on involving diverse voices in healthcare research and service design highlights the necessity of formalising PPI within the dental hygiene and dental therapy arena to ensure that patient experiences and perspectives actively inform future oral health strategies. The patient experience is now recognised as a fundamental component of healthcare quality, alongside clinical effectiveness and patient safety.[5] However, despite its increasing importance in healthcare policy, research, and service delivery, there is no single standardised definition of patient experience. It is a multi-dimensional concept shaped by personal interactions, organisational culture, patient perceptions, and the continuum of care. A structured approach to PPI ensures that the perspectives of patients and the public are systematically integrated, allowing for the development of healthcare resources and services that are both clinically effective and meaningfully aligned with patient needs.

Oben (2020) highlights that patient experience is not solely about clinical outcomes but also about the human aspect of care, including personal interactions, trust, and continuity of support. Understanding and integrating these factors into healthcare design enhances engagement and ensures services are both effective and emotionally resonant.[5] Within dental hygiene and dental therapy, PPI offers a way to bridge the gap between clinical expertise and patients' lived experiences, improving the relevance and impact of oral health interventions.

While PPI is well-integrated into medicine and public health, its role within dental hygiene and dental therapy remains underdeveloped. As a profession rooted in disease prevention, patient education, and behavioural change, the Society is uniquely positioned to benefit from a formalised approach to patient engagement. A structured PPI group ensures that oral health messages are delivered in ways that resonate with patients, while also enhancing professional visibility and public understanding of the role of dental hygienists and dental therapists.

Despite their pivotal role in early disease detection, oral hygiene education, and evidence-based interventions, many patients remain unaware of the full scope of practice of dental hygienists and dental therapists. This lack of awareness can lead to underutilisation of services and missed opportunities for preventive care. By embedding PPI within these professions, we can bridge this gap by engaging directly with patients, developing co-created educational materials, expanding digital outreach, and positioning dental hygiene and dental therapy as an essential component of preventive healthcare.

This article explores the importance of establishing a PPI group within BSDHT, outlining how it can contribute to the development of more impactful patient resources, guide research priorities, and influence educational initiatives and inform public health policies. The critical role of health literacy and how PPI can help address existing gaps in public understanding of oral health will also be addressed.

Patient-centred Care and Empowerment

At the heart of PPI is the concept of patient-centred care, which emphasises healthcare that is respectful of, and responsive to, individual patient preferences, needs, and values.[3] Research shows that when patients are actively involved in healthcare decisions, the quality of care improves, and patient satisfaction increases.[1] PPI provides a structured way to ensure that patient input directly informs the design and delivery of oral healthcare resources and services.

For the field of dental hygiene and dental therapy, this approach is particularly valuable. Preventive care is a critical component of oral health, and ensuring that patients understand, value, and engage with preventive measures, requires active participation from the public. A PPI group enables patients to shape the materials and strategies used by dental hygienists and dental therapists, making these tools more relatable and accessible. This aligns with the

broader trend in healthcare of moving from intervention-focused care to prevention-centred strategies.

The recent S3 guidelines from the European Federation of Periodontology (EFP)[6] and the British Society of Periodontology (BSP)[7] highlight the significance of engaging patients in their healthcare journey. These guidelines highlight how patient involvement is essential for improving adherence and outcomes, particularly in managing periodontal disease. They also emphasise the link between oral health and systemic inflammation, showing that periodontal disease is not just a localised issue but can contribute to broader systemic health concerns such as cardiovascular disease, diabetes, and other inflammatory non- communicable conditions.

Addressing Health Literacy & Behaviour Change

Health literacy is another critical factor that affects how patients engage with healthcare resources and services. According to Rowlands et al.(2015) approximately 43% of adults in England have inadequate health literacy, meaning they struggle to understand and act on basic health information.[8] This presents a significant challenge, particularly in preventive care, where patient understanding of, and adherence to, health advice can determine the success of interventions.

In the context of oral health, a major challenge is the intention-behaviour gap, a concept introduced by Gollwitzer in 1999.[9] This gap occurs when patients intend to follow through on preventive measures, such as improving oral hygiene, but fail to implement those intentions in their daily lives. PPI can help bridge this gap by involving patients in the creation of resources that address the barriers preventing them from acting on their intentions. By engaging patients in the development of educational materials, PPI ensures that these resources not only convey information but also motivate behaviour change.

To better understand patient behaviour and address the intention-behaviour gap, the COM- B model by Susan Michie et al. (2011)[10] offers a comprehensive framework. The COM-B model identifies three essential components for behaviour change: Capability, Opportunity, and Motivation. By ensuring patients have the knowledge and skills (Capability), the environment and support (Opportunity), and the desire (Motivation) to engage in preventive behaviours, healthcare providers can increase the likelihood of sustained behaviour change. Using this model as a guide, PPI can help develop educational materials that address all three components, making it more likely that patients will adhere to oral health recommendations and improve their long-term outcomes.

Creating Resources that Have Greater Impact

The development of resources that truly resonate with the public requires patient input. Without understanding the lived experiences of patients, it can be difficult to create educational materials or resources that are engaging and meaningful. PPI ensures that the materials developed are not only accurate and evidence-based but also relatable, which leads to higher levels of engagement and understanding among patients.[11,12]

In dental hygiene and dental therapy, this is especially important as much of the work revolves around preventive care. The success of preventive measures, such as fluoride application or fissure sealants, often depends on the patient's understanding of why these measures are important. By engaging patients in the process of creating educational resources, we can ensure that these materials are designed to communicate key preventive messages effectively, making them more impactful.

Patients and the public should know what to expect during their dental visits, including the tests and indices used to assess their oral health. Often, patients hear numbers and technical jargon exchanged between clinicians, which are documented in their notes, but little of this information is communicated in a way that is understandable, meaningful or actionable. [8,11] Many patients are unaware of what these tests (bleeding scores or BPE codes) actually represent or how they relate to their overall health. By sharing this data with patients, setting realistic goals, and creating a plan to help them achieve these targets, we engage them with the numbers, helping them understand their significance and empowering them to change those figures.

As patients become familiar with these assessments and the information they provide, they will start to expect them as part of their routine care. This shift will drive demand for these tests and make them an integral part of the dental care process. It's time to reconsider our approach if the current methods are not effectively engaging patients in their own health. By involving them more deeply in their results and care plans, we can foster greater patient participation and improve outcomes.[8]

The Role of PPI in Shaping Research and Policy

Identifying Priorities for Research & Development

Research is most effective when it is directly aligned with the needs of the population it serves. Involving patients and the public in setting research priorities helps ensure that the studies we pursue are relevant and meaningful. According to Boote et al. (2010), patient involvement in research planning leads to more focused studies and greater applicability of research outcomes. By understanding the real-world challenges faced by patients, researchers can design studies that address these challenges directly.[12]

One pressing research topic that could benefit from greater PPI is the global burden of periodontal disease. Tonetti et al. (2017)[13] highlighted how periodontal disease is not only prevalent but also significantly impacts systemic health, linking poor oral health to conditions such as cardiovascular disease and diabetes. By involving patients

in discussions about periodontal disease research, we can ensure that future studies focus on areas that matter most to those affected, such as accessible treatment options and effective prevention strategies.

For BSDHT, the PPI group would play a critical role in helping identify key research areas for development. Patient input can highlight gaps in care, or areas where more preventive research is needed. This could include research into more effective patient education techniques, new preventive strategies, or ways to improve patient adherence to oral health advice.

Informing/Influencing Public Health Policy

In addition to shaping research, PPI has the potential to influence public health policy. By involving patients in discussions around policy, healthcare organisations can ensure that policies are aligned with the real needs and concerns of the population.[8] In the dental field, this could involve advocating for greater access to preventive care or influencing policies that promote the use of evidence-based interventions, such as fluoride application.

Public health bodies such as the National Institute for Health and Care Excellence (NICE) have incorporated PPI into their guideline development processes, ensuring that patient perspectives are considered when creating national health policies.[14] Similarly, the British Society of Dental Hygiene and Therapy's PPI group would help guide advocacy efforts, ensuring that the society's policy priorities reflect the needs of patients and the public.

Recent articles, such as the Economist's "Time to Take Gum Disease Seriously" (2019), highlight the growing recognition of gum disease as a major public health issue.[15] This reinforces the importance of advocacy and PPI in driving policies that promote preventive care and increased awareness of oral health. The PPI group can play a crucial role in advocating for policies that address the burden of gum disease and improve access to preventive care.

The Benefits and Challenges of PPI in Dental Hygiene and Dental Therapy

Benefits

One of the primary benefits of establishing a PPI group within BSDHT is the creation of patient-centred educational resources. These materials, developed with input from the public, will be more effective in communicating important oral health messages. Additionally, the PPI group will help build public trust in the profession, positioning dental hygienists and dental therapists as not only clinicians but also as educators who are invested in the long-term health of their patients.

Furthermore, PPI can help guide the Society's strategic direction by identifying key areas for research and advocacy. By listening to the concerns and priorities of patients, the Society can focus its resources on the areas that will have the most impact, whether that's developing new educational tools, improving preventive care delivery, or advocating for policy changes that benefit patients.

Challenges

While PPI offers many benefits, there are also challenges associated with its implementation. Recruiting a diverse and representative group of participants can be difficult, particularly in ensuring that voices from underserved populations are heard. Additionally, simplifying complex health information for public consumption without losing the nuances of the evidence can be challenging for healthcare professionals accustomed to communicating with peers.

The application of evidence-based behavioural models, such as the COM-B model[10], can help address these challenges. By focusing on patients' Capability, Opportunity, and Motivation, PPI participants can help create more accessible materials that are behaviourally informed. Using these techniques, PPI can guide the development of materials that promote translating health advice into action.

A Vision for the Future of Dental Hygiene and Dental Therapy

The establishment of a PPI group within the Society marks an important shift toward a more inclusive, patient-centred approach to oral healthcare. Through this initiative, we would not only create more effective educational resources but also better align our research priorities and policy advocacy with the needs of the population.

By positioning dental hygiene and dental therapy professionals as empathetic educators and advocates for preventive care, we can help patients take control of their oral health beyond the confines of the dental surgery. This shift will not only improve patient outcomes but also elevate the profession as a whole, positioning it as a trusted and essential part of the broader healthcare landscape.

Conclusion

As the first Society of dental hygiene and dental therapy to establish a PPI group, we would set a new standard for patient engagement in oral health. By integrating patient voices into every aspect of our work from research to resource development to policy advocacy we can ensure that our efforts have a meaningful and lasting impact on public health. This initiative represents a significant step forward in improving health literacy, fostering patient-centred care, and positioning the profession as a leader in preventive healthcare.

Authors : Claire McCarthy PhD, MA Ed. RDH, PGCE, Cert Ed. FAETC, RDN, FHEA, FCGDent. Clinical Research Fellow & Clinical Teacher Periodontology Faculty of Dentistry, Oral & Craniofacial Sciences, Kings College London.

Sarah Murray MBE, MA, Dip DH, Dip DT, SFHEA, FDTFEd
Reader in Dental Therapy Education & Academic Co-Lead for Quality Assurance, Faculty of Medicine and Dentistry, Queen Mary University of London.

Contact : claire.mcarthy@kcl.ac.uk

References

1. Coulter, A. 2011. Engaging Patients in Health Care.
2. NHS England (2022). Patient and public involvement strategy 2021-2026
3. Institute foMedicine (US) Committee on Quality of Health Care in America. 2001 Crossing the Quality Chasm: A New Health System for the 21st Century.
4. NIHR (2024) Patient and Public Involvement and Engagement Strategy 2024-2028.
5. Oben P. Understanding the Patient Experience: A Conceptual Framework. *J Patient Exp.* 2020;**7(6)**:906–10.
6. Sanz M, Herrera D, Kebschull M, Chapple I, Jepsen S, Berglundh T, et al. Treatment of stage I–III periodontitis—The EFP S3 level clinical practice guideline. *J Clin Periodontol.*2020 ;**47(S22)**:4–60.
7. West N, Chapple I, Culshaw S, Donos N, Needleman I, Suvan J, et al. BSP Implementation of prevention and treatment of peri-implant diseases – The EFP S3 level clinical practice guideline. *J Dent.* 2024;**149**:104980.
8. Rowlands G, Protheroe J, Winkley J, Richardson M, Seed PT, Rudd R. A mismatch between population health literacy and the complexity of health information: an observational study. *Br J Gen Pract.* 2015;**65(635)**:e379.
9. Gollwitzer PM. Implementation intentions: Strong effects of simple plans. *Am Psychol.* 1999;**54(7)**:493–503.
10. Michie S, Van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing beahviour change interventions. *Implement Sci.* 2011;**6(1)**:42.
11. Boote J, Wong R, Booth A. 'Talking the talk or walking the walk?' A bibliometric review of the literature on public involvement in health research published between 1995 and 2009. *Health Expect.* 2015;**18(1)**:44–57.
13. Boote J, Baird W, Beecroft C. Public involvement at the design stage of primary health research: A narrative review of case examples. *Health Policy.* 2010;**95(1)**:10–23.
14. Tonetti MS, Jepsen S, Jin L, Ootmo-Corgel J. Impact of the global burden of periodontal diseases on health, nutrition and wellbeing of mankind: A call for global action. *J Clin Periodontol.* 2017;**44(5)**:456–62.
15. National Institute for Health and Care Excellence (2015) NICE's approach to public involvement in guidance and standards: a practical guide. available at https://www.nice.org.uk/media/default/About/NICE-Communities/Public-involvement/Public-involvement-programme/PIP-process-guide-apr-2015.pdf
16. Economist Impact. Time to take gum disease seriously. 2021. Available at https://impact.economist.com/perspectives/health/time-take-gum-disease-seriously-societal- and-economic-impact-periodontitis.

Cite this article:

McCarthy C, Murray S. Integrating patient and public involvement in dental hygiene and therapy: A strategic move toward patient-centered care. *Dental Health* 2025**;64(2)**:37-41 https://doi.org10.59489bsdht157

BY GULAB SINGH

AESTHETIC ENHANCEMENT OF A RETAINED DECIDUOUS TOOTH IN AN ADULT

Abstract

This clinical report discusses the treatment of a retained upper left primary lateral incisor in an adult using a semi-direct composite resin technique to reshape the tooth for aesthetic enhancement. The treatment achieved a favourable aesthetic result and follow-up at 12 and 24 months showed sustained success (Figs.1-4).

Introduction

In an individual with congenital hypodontia (missing 1-6 teeth), or anodontia (complete absence of teeth), the natural exfoliation of primary teeth may not occur. The most commonly affected teeth are the mandibular second premolars, followed by maxillary lateral incisors, maxillary second premolars and mandibular incisors. The condition is more common in females than males. Although the aetiology remains unclear, both genetic and environmental factors may contribute. Regardless of the cause, the absence of teeth can significantly impact patients in several ways.[1]

The rate of root resorption of deciduous teeth with no permanent successor is variable and these teeth may remain in the mouth longer than expected and impact appearance, mastication, speech and occlusion.[2]

Psychological Impact

The absence of teeth affects dentofacial aesthetics and can sometimes influence how individuals are perceived by others. This can alter perceptions of intelligence, friendliness, social class and popularity, impacting interpersonal relationships.[3,4]

Functional Impact

Hypodontia often leads to deep bites and spacing issues. Patients may experience limitations in chewing function, speech and the muscular coordination of the mouth. The primary teeth, particularly in the anterior region, have wider mesiodistal crowns and long, narrow roots, unlike permanent teeth. This structural difference can affect the

Figures 1 and 3: **Before treatment**

Figures 2 and 4: **After treatment**

ability of these retained deciduous teeth to withstand adult masticatory forces.[5]

Management Options

In such cases where a deciduous tooth is retained and the permanent successor is missing, several treatment options are available[6-8]:

1. **Retain the deciduous tooth** with or without restorative modifications.
2. **Extract the deciduous tooth** followed by:

- Leaving an edentulous space
- Orthodontic closure of the space
- Auto-transplantation of another tooth into the space
- Prosthodontic replacements, such as conventional or resin-bonded bridges, removable prostheses, or implant-retained prostheses
- Orthodontic treatment to optimise the space for future prosthodontic work
- Use of a bonded composite veneer for aesthetic enhancement, which is within the remit of the scope of a dental therapist.

Evaluation for Successful Restoration

A thorough clinical evaluation, including history, examination and current radiographs, is crucial for determining the best approach. Key areas to assess include:

- **Occlusion:** Evaluate vertical dimension, retruded contact position, intercuspal position and excursive contacts.
- **Radiographic assessment:** Check the root structure, apical status, periodontal support, and any previous root resorption.[1]

Previewing the aesthetics of a potential treatment, using methods such as uncured composite or temporary crowns, can help patients visualise the results. This often proves more effective than wax-ups for aesthetic decisions, though irreversible procedures cannot be trialled in the same way.

Patient Perspective

Often adult patients with retained deciduous teeth are unconcerned about the aesthetics. However, others may wish to retain the tooth but ask if the appearance could be improved. The decision is often guided by the patient's personal preferences and the professional judgment of the clinician.

This clinical report aims to address one such case involving a retained deciduous upper left lateral incisor.

Case Presentation

A 56-year-old male presented with a retained upper left primary lateral incisor (UL B). The patient expressed concern about the colour and shape of the retained primary lateral incisor, which was the primary source of aesthetic dissatisfaction.

Figure 5: **Radiograph showing retained deciduous upper left lateral incisor**

A through clinical and radiographic assessment was undertaken to ensure the retained deciduous tooth met the criteria for a successful restoration. (Fig. 5)

The patient, and his family, were consulted on possible treatment options, including maintaining the tooth while modifying its appearance using bonded composite veneers.

Bringing a patient's family into the decision-making process is often essential in healthcare, especially when a treatment may affect the patient's appearance or quality of life. Family members often provide emotional support and help the patient weigh the pros and cons of different options. Their input can make the patient feel more confident with their decision. Patients' loved ones may have strong opinions about appearance-related treatments, particularly if the outcome affects the patient's confidence or aligns with the family's perception of the patient. Aesthetic treatments, such as dentures, crowns, composite bonding, or bridges, can impact how a patient feels about themselves and how others perceive them. When families are involved, it can reduce the risk of misunderstandings or regrets. It ensures everyone understands the treatment's purpose, benefits and potential outcomes. Furthermore, in many cultures, family consensus is a critical component of significant decisions, especially related to health and appearance. In this digital world of dentistry, pre-treatment results can easily be produced and involving the family fosters shared understanding, supports the patient emotionally and ensures decisions are made in everyone's best interest.

A free-hand mock-up provided a visual preview of the proposed changes which helped the patient and his family make a decision. The patient chose the option of reshaping the retained tooth to improve its aesthetics while leaving the gap from the missing upper right lateral incisor unaddressed.

Following confirmation of the treatment plan, an appointment was scheduled for restoration.

Figure 6: **Minimal tooth preparation**

Treatment Procedure

The treatment began with shade selection, confirmed as Vita A2. Rubber dam isolation was applied to ensure a clean working environment. Minimal tooth preparation was undertaken to facilitate the bonding process (Fig. 6). The wide mesio-distal width of the retained UL2 area was a significant challenge and proved difficult to achieve contouring. To address this, a Unica matrix system was used, as it had previously yielded favourable anatomical shapes in other cases.

Additionally, due to the wide mesio-distal width, traditional wedging methods were inadequate. Liquid dam was applied to stabilise the matrix during restoration (Fig.7). Layering techniques were employed to build up the tooth gradually, ensuring the final restoration met the desired aesthetic outcome. Once the build-up was complete, the matrix was removed and the restoration was inspected for voids or imperfections.

The restoration was then shaped using a fine diamond bur, followed by finishing with Soflex discs and Venus wheels. The final polishing was performed with Dentsply diamond paste to achieve a smooth and aesthetic surface. After removal of the rubber dam, the patient's bite was checked, and the restoration was found to be stable and functional.

Figure 7: **Liquid dam was applied to stabilise the matrix during restoration**

Post-operative instructions for composite bonding were provided to the patient to ensure proper maintenance and care of the restoration. For the first few days after the procedure, the composite bonding will continue to settle into place, and it may be more prone to staining. The patient was advised to avoid certain foods and drinks, particularly hard or sticky items, as well as substances that can stain teeth, such as smoking, coffee and red wine, especially immediately after the procedure.

For long-term care, the patient was instructed to continue practising good oral hygiene, including brushing twice a day, using dental floss, and rinsing with a quality mouthwash both in the morning and at night. Although the patient does not have a history of teeth grinding, those who do may be advised to use a mouth guard or splint to protect the restoration, which the dentist can provide.

Regular monitoring of the restored deciduous teeth is important to ensure they continue to function properly. The patient was advised to attend routine dental examinations every six months and have their teeth professionally cleaned and polished once a year to reduce the potential for long-term staining of the composite bonding.

Conclusion

The treatment of the retained UL B with a semi-direct composite resin technique was successful in achieving an excellent aesthetic result. The

Figure 8: **24-month review**

patient's concerns regarding colour and shape were addressed, and the restoration remained stable at the 12 and 24-month follow-up (Fig.8).

This case highlights the effectiveness of composite resin veneers in restoring retained deciduous teeth in adults, offering a minimally invasive and cost-effective solution to improve both aesthetics and function.

Author: Gulab is a multi-award winner dental hygienist and dental therapist and clinical educator for NSK Ikigai community.

Contact: gulab_singh4@hotmail.com

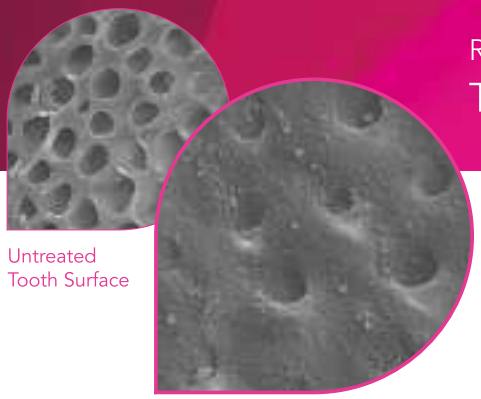
References

1. Khalaf K, Miskelly J, Voge E, Macfarlane TV. Prevalence of hypodontia and associated factors: a systematic review and meta-analysis. *J Orthodont.* 2014;**41(4)**:299-316. https://doi.org/10.1179/1465313314Y.0000000116
2. Robinson S, Chan MW. New teeth from old: treatment options for retained primary teeth. *Brit Dent J.* 2009;**207(7)**:315-320. https://doi.org/10.1038/sj.bdj.2009.855
3. Hashem A, Kelly A, O'Connell B, O'Sullivan M. Impact of moderate and severe hypodontia and amelogenesis imperfecta on quality of life and self-esteem of adult patients. *J Dent.* 2013;**41(8)**:689-694. https://doi.org/10.1016/j.jdent.2013.06.004
4. Banks GC, Batchelor JH, McDaniel MA. Smarter people are (a bit) more symmetrical: A meta-analysis of the relationship between intelligence and fluctuating asymmetry. *Intelligence*. 2010;**38(4)**:393-401. https://doi.org/10.1016/j.intell.2010.04.003
5. Sletten DW, Smith BM, Southard KA, Casko JS, Southard TE. Retained deciduous mandibular molars in adults: a radiographic study of long-term changes. *Am J Orthodont Dentofac Orthoped.* 2003;**124(6)**:625-30. https://doi.org/10.1016/j.ajodo.2003.07.002
6. Laverty DP, Fairbrother K, Addison O. The current evidence on retaining or prosthodontically replacing retained deciduous teeth in the adult hypodontia patient: A systematic review. *Euro J Pros Res Dent.* 2018;**26(1)**:2-15. https://doi.org/10.1922/ejprd_01721laverty14
7. Chatzipantelis A, Dunn KJ, Charan G, Ashley MP. Restorative dentistry clinical decision-making for hypodontia: complex cases. *Brit Dent J.* 2023;**235(7)**:489-495. https://doi.org/10.1038/s41415-023-6324-5
8. Frese C, Schiller P, Staehle HJ, Wolff D. Recontouring teeth and closing diastemas with direct composite buildups: a 5-year follow-up. *J Dent.* 2013;**41(11)**:979-985. https://doi.org/10.1016/j.jdent.2013.08.009

Cite this article:

Singh G. Aesthetic enhancement of a retained deciduous tooth in an adult. Dental Health 2025;**64(2)**:42-45. https://doi.org10.59489bsdht155

Remineralisation of Enamel and Dentine:
The **Biomimetic**, **Bioactive** and **Biocompatible** choice



Untreated Tooth Surface

Tooth Treated with Biosmalto

CURASEPT BIOSMALTO

7
YEARS OF RESEARCH

3
INTERNATIONAL PATENTS

24
CLINICAL STUDIES AND CASES

Scan for samples and to register for upcoming Curasept webinars

A 'GAME CHANGER' in the treatment of SENSITIVITY

In Brief: Curasept Biosmalto Impact Action Mousse is an innovative formula containing Amorphous Calcium Phosphate (ACP) enriched with carbonate and fluoride. The F-ACP COMPLEX dissolves immediately to rapidly release active ions that provide a biomimetic type action that stimulates the remineralisation of a tooth surface to create newly formed hydroxyapatite crystals.

Potassium nitrate inside Biosmalto depolarises nerve fibres for rapid pain relief and strontium salts occlude exposed dentinal tubules for a highly effective and long lasting de-sensitising effect.

Indications: Ideal for those suffering from hyper-sensitivity due to exposure of the dentine through weakened enamel and/or gingival recession. Also for teeth whitening patients (before and after treatment), immediately before hygiene/ dental treatments as well as after 'airflow' treatment.

Benefits:

- Innovative biomimetic and bioactive F-ACP COMPLEX intensely remineralises enamel and dentine
- Strengthens and protects by forming a new mineral phase that is more resistant to acid and erosion
- Potassium nitrate provides rapid pain relief
- Strontium salts occlude dentinal tubules for a long lasting desensitising effect
- 1450ppm Fluoride
- Lactose free & vegan friendly

BUY 2 TUBES OF MOUSSE AND GET 1 FREE*

Step One

Mousse is 'All Fruits' flavour

Curasept Biosmalto Impact Action Mousse (150ml):
In-Surgery Application

Step Two

Curasept Biosmalto Impact Action Mousse (50ml):
At-Home Application over 30 - 90 Days (Depending on Indication and Treatment Protocol)

Step Three

Curasept Biosmalto Toothpaste and Mouthwash:
Daily At-Home Use

Ready to Join the Revolution?

Orders can be placed through your usual dental dealer. To claim free stock, please send a copy of your invoice to **jsdsales@js-davis.co.uk**.

*Offer valid until 30.06.25 and only whilst stocks last. Subject to terms and conditions.

J&S DAVIS

FOLLOW THE BSDHT ON Facebook & Instagram

FB: /BSDHT **IG: @BSDHTUK**

COPY DATES FOR

DENTAL HEALTH

1ST APRIL FOR MAY ISSUE

The Editor would appreciate items sent ahead of these dates when possible

Email: editor@bsdht.org.uk

UNSUBSCRIBED?

You may be missing out on regular updates from BSDHT!

Contact: **enquiries@bsdht.org.uk**

CLINICAL QUIZ

A 55-year-old male patient presents for routine treatment. He tells you that he is worried about a sore on his tongue.

Q1. Name three signs of potential mouth cancer.

Q2. In which two areas of the mouth is mouth cancer most commonly found?

Q3. Name three risk factors for mouth cancer.

Image courtesy of Mahesh Kuma

SEND YOUR ANSWERS TO THE EDITOR BY 31ST MARCH. PLEASE INCLUDE YOUR ADDRESS.

Email: editor@bsdht.org.uk **Postal:** The Editor, Dental Health, BSDHT, Bragborough Hall Business Centre, Welton Road, Braunston NN11 7JG.

Win a Waterpik Cordless Advanced!

The Cordless Advanced water flosser from Waterpik™ is a leading solution that is 50% more effective than traditional string floss, and removes up to 99.9% of plaque from treated areas with as little as a 3-second application. With 3 pressure settings, 4 different water flossing tips for different needs, and a travel-friendly, extra-quiet design, the Cordless Advanced is an ideal oral hygiene adjunct for clinicians and patients alike.

For more information on WaterpikTM water flosser products visit www.waterpik.co.uk. WaterpikTM products are available from Amazon, Costco UK, Argos, Boots and Tesco online and in stores across the UK and Ireland.

1. Rosema, N. A., Hennequin-Hoenderdos, N. L., Berchier, C. E., Slot, D. E., Lyle, D. M., & van der Weijden, G. A. (2011). The effect of different interdental cleaning devices on gingival bleeding. J Int Acad Periodontol, 13(1), 2-10.
2. Gorur, A., Lyle, D. M., Schaudinn, C., & Costerton, J. W. (2009). Biofilm removal with a dental water jet. Compendium of continuing education in dentistry (Jamesburg, NJ: 1995), 30, 1-6.

ANSWERS TO CLINICAL QUIZ JANUARY 2025

Intraoral examination reveals diffuse swelling in the right third molar area, extending buccally and lingually around the peri coronal flap over a partially erupting third molar. The area is very tender to touch with evidence of pus discharging from under the flap.

Q1. What further investigations are needed?

A1. *Panoramic radiograph/ OPG/DPT*

Periapical radiograph of LR6 and LR7

Explore pocket depths around LR6 and LR7

Percussion test for LR6 and LR7

Sensibility testing of LR6 and LR7

Q2. What are the differential causes for the pain and swelling that the patient is experiencing?

A2. Pericoronitis LR8

Pericoronal abscess LR8

Reversible pulpitis of LR6

Q3. What is the short, and long term, management?

A3. ***Short term:***

Drain the abscess

Irrigation with chlorhexidine mouthwash or normal saline under the flap

Advise the patient to do use a warm saline mouth

Advise patient to brush under the flap with single tufted brush

Take analgesics for pain relief

If there are signs of sepsis, prescribe antibiotics (metronidazole 400 mg tds for 5 days)

Long term:

removal of wisdom tooth based on the NICE guidelines .

References

Guidance on the extraction of wisdom teeth. National Institute for Health and Care Excellence. March 2000, https://www.nice.org.uk/guidance/ta1/resources/guidance-on-the-extraction-of-wisdom-teeth-pdf-63732983749

DIARY DATES

SPRING 2025 BSDHT REGIONAL GROUP STUDY DAYS

Contact: enquiries@bsdht.org.uk

Regional Group	Date	Details	Contact (Group Secretary)	Contact Details
Eastern	Sat, 22nd March 2025	Holiday Inn Colchester Abbotts Lane, Eight Ash Green, **Colchester** CO6 3QL	Amanda Kestell	easternsecretary@bsdht.org.uk
London	Thurs, 27th March 2025	Neuron Pod, Queen Mary University of London, The Blizard Building, 4 Newark Street, **London** E1 2AT	Udita Patel	londonsecretary@bsdht.org.uk
Midlands	Sat, 12th April 2025	Mercure Warwickshire Walton Hall Hotel & Spa, Walton, Wellesbourne, Warwickshire CV35 9HG	Joanna Ericson	midlandssecretary@bsdht.org.uk
North East	Sat, 5th April 2025	Radisson Blu Hotel, Frankland Lane, **Durham** DH1 5TA	Sarah Hunter	northeastsecretary@bsdht.org.uk
North West	Sat, 16th April 2025	MANDec Manchester 3rd Floor, University Dental Hospital, Higher Cambridge Street, Manchester M15 6FH	Jessica McGenn	northwestsecretary@bsdht.org.uk
Northern Ireland	Sat, 22nd March 2025	Marlborough Clinic Belfast, 1 Marlborough Park, **Belfast** BT9 6XS	Gill Lemon	northernirelandsecretary@bsdht.org.uk
Scottish	Sat, 21st June 2025	Scottish Dental Show, **Braehead** Arena (no trade)	Kirsty Sim	scottishsecretary@bsdht.org.uk
South East	Sat, 26th April 2025	Salomon's Estate Country House, **Tunbridge Wells** TN3 0TG	Sam Doyle	southeastsecretary@bsdht.org.uk
Southern	Saturday 15th March 2025	Voco Hotel (Holiday Inn), Telegraph Way, **Winchester** SO21 1HZ	Karen Poulter	southernsecretary@bsdht.org.uk
South West & South Wales	Sat, 22nd March 2025	St. Pierre Marriott Hotel & Country Club, St Pierre Park, **Chepstow** NP16 6YA	Lynn Chalinder	swswsecretary@bsdht.org.uk
South West Peninsula	Sat, 7th June 2025	China Fleet Country Club, Saltash, **Cornwall** PL12 6LJ	VACANT	southwestsecretary@bsdht.org.uk
Thames Valley	Sat, 12th April 2025	Mercure Warwickshire Walton Hall Hotel & Spa, Walton, Wellesbourne, Warwickshire CV35 9HG	Keileigh Lerston	thamesvalleysecretary@bsdht.org.uk

RECRUITMENT

HELSTON, Cornwall

Meneage Dental Care are seeking a compassionate GDC registered Dental Therapist to join our friendly and dynamic team.

As a key part of our dental practice, you will provide exceptional care and treatment to patients of all ages. If you are passionate about delivering high-quality dental care and have a proactive, patient-centred approach, we would love to hear from you!

We are a therapy driven, fully private practice with a team of 5 dental therapists and hygienist using all of the scope of practice. Working as part of an established team, with great experienced nurse support, this post will suit a committed team player.

We have 4 days available, which can be employed or self-employed. Full In-House, on-going training, mentoring and clinical support delivered by principal clinicians, using the best materials.

If you are interested, please get in touch.
Forward your CV to : **sarah@meneagedental.co.uk**

UTTOXETER, Staffordshire

Join Our Team as a Dental Hygienist at Uttoxeter Dental Practice. Are you a skilled and compassionate Dental Hygienist looking for an exciting opportunity in Uttoxeter, Staffordshire.

Uttoxeter Dental Practice is seeking a dedicated individual to join our team.

Location: Uttoxeter, Staffordshire - conveniently located close to the A50, just 30 minutes from Derby and Stoke.

Working Hours: Part-time position, 1-2 days a week must include a Tuesday.

Full Chair-Side Support: Enjoy the support of an experienced team members to ensure smooth operations during your appointments.

State-of-the-Art Equipment: Benefit from access to advanced tools including a Piezo scaler, ultrasonic equipment, NSK airflow system, and OPG for comprehensive patient care.

Specialized Periodontal Treatment: Our practice offers advanced treatment options for Periodontal disease, including surgical procedures and Emdogain therapy.

£36-£38 per hour
Apply to: **basonandgathercole@btconnect.com**

HAMPSTEAD, London

We are looking for a dental therapist to join our team for 2 days per week in our private practice in Hampstead.

If you would like to work as part of a supportive team using a wide range of their dental therapy scope of practice and would like to continue to develop or enhance your clinical skills.

please contact: **Nicola@hampsteadhealthcare.com**

HEXHAM, Northumberland

Hexham Dental Clinic, a well-established private practice in Northumberland, is looking for a skilled and enthusiastic Dental Hygienist to join our supportive and friendly team. This is a purely private role, with a dedicated dental nurse always provided to assist you.

Our modern, fully equipped clinic offers a welcoming environment where you can thrive and deliver the highest standard of care to our motivated, loyal patient base.

What We Offer:

- Competitive pay
- 1-2 days a week available (days may be flexible)
- State-of-the-art facilities
- A supportive team committed to excellence

What We're Looking For:

- GDC registration
- Excellent communication and interpersonal skills
- A passion for patient care and oral health

This is an exciting opportunity to join a professional and well-established practice with a strong reputation in the community.

To apply, please email your CV and cover letter to:
sophie@hexhamdentalclinic.com

Better for patients' pockets, and yours

MyLunos Duo table-top device offers everything you could want from an air polisher and Piezon scaler...for less

- Sub-gingival tip is tapered allowing much easier pocket access
- Warms water creating a more comfortable experience for the patient
- Constant airflow to protect against blockage
- Built in powder chambers saves time swapping mid-treatment
- £2,000 cheaper than comparable competitor unit

Video
MyLunos Duo®

DÜRR DENTAL

BSDHT ADMIN

Bragborough Hall Business Centre, Welton Road, Braunston NN11 7JG. **Tel: 01788 575050** **Email: enquiries@bsdht.org.uk**

ADMINISTRATION

President: **Rhiannon Jones -** president@bsdht.org.uk

President Elect:
Simone Ruzario - presidentelect@bsdht.org.uk

Honorary Treasurer:
Claire Bennett - treasurer@bsdht.org.uk

Honorary Secretary:
Juliette Reeves - honsec@bsdht.org.uk

Honorary Vice Presidents:
Iain Chapple, Nishma Sharma, Mike Lewis

Tutor Rep: **Emma Bingham -** tutorrep@bsdht.org.uk

Publications Editor representative:
Patricia Macpherson - pubs@bsdht.org.uk

Elected Council Members:
Kirsty Chappell, Alastair Lomax, Sakina Syed
ecm1@bsdht.org.uk

Elected Council Members to Executive Team:
Tracy Doole - ecm2@bsdht.org.uk
Sakina Syed - ecm3@bsdht.org.uk

UK representatives to the IFDH:
Rhiannon Jones, Simone Ruzario

BSDHT Representatives:
Institute of Health Promotion and Education:
Elaine Tilling

BSDHT representative Health Education England Advisory Group (HEEAG): **Diane Hunter**

Student representative to council:
TO BE CONFIRMED - studentrep1@bsdht.org.uk
TO BE CONFIRMED - studentrep2@bsdht.org.uk

Student Representative Coordinator:
Amie Kavanagh - studentrep@bsdht.org.uk

Coaching and Mentoring Representative:
Emma Slade-Jones - MC1@bsdht.org.uk

Diversity, Inclusion and Belonging representative:
Anna Charters

REGIONAL GROUP REPRESENTATIVES ON COUNCIL

Eastern: **Andrea Hammond**
easternregionalrep@bsdht.org.uk

London: **VACANT**
londonregionalrep@bsdht.org.uk

Midlands: **Tiffani Hutchinson**
midlandsregionalrep@bsdht.org.uk

North East: **Cara Hills-Smith**
northeastregionalrep@bsdht.org.uk

North West: **Victoria Griffiths**
northwestregionalrep@bsdht.org.uk

Northern Ireland: **Tracy Doole**
northernirelandregionalrep@bsdht.org.uk

Scotland: **Lynn Harris**
scottishregionalrep@bsdht.org.uk

South East: **Casey Duncan**
southeastregionalrep@bsdht.org.uk

Southern: **Anna Wahlberg**
southernregionalrep@bsdht.org.uk

South West and South Wales: **Adam Taylor**
swswregionalrep@bsdht.org.uk

South West Peninsula: **Sabina Camber**
southwestregionalrep@bsdht.org.uk

Thames Valley: **Fiona Stovold**
thamesvalleyregionalrep@bsdht.org.uk

ADMINISTRATION

EASTERN

Chair: **Jade Tan**
easternchair@bsdht.org.uk

Secretary: **Amanda Kestell**
easternsecretary@bsdht.org.uk

Treasurer: **Amanda Harbrow-Harris**
easterntreasurer@bsdht.org.uk

Trade Liaison: **Anna Charters**
Email: easterntlo@bsdht.org.uk

LONDON

Chair: **Sakina Syed**
londonchair@bsdht.org.uk

Secretary: **Udita Patel**
londonsecretary@bsdht.org.uk

Treasurer: **VACANT**
londontreasurer@bsdht.org.uk

Trade Liaison: **(Mary) Annastasia Kellett-Wright**
londontlo@bsdht.org.uk

MIDLANDS

Chair: **Eleanor Cowlam (Acting)**
midlandschair@bsdht.org.uk

Secretary: **Joanna Ericson**
midlandssecretary@bsdht.org.uk

Treasurer: **Hannah Moore (Acting)**
midlandstreasurer@bsdht.org.uk

Trade Liaison: **Jenny Whittaker**
midlandstlo@bsdht.org.uk

NORTH EAST

Chair: **Julie Rosse**
northeastchair@bsdht.org.uk

Secretary: **Sarah Hunter**
northeastsecretary@bsdht.org.uk

Treasurer: **Sarah Warwick**
northeasttreasurer@bsdht.org.uk

Trade Liaison: **Liz Powell**
northeasttlo@bsdht.org.uk

NORTH WEST

Chair: **Victoria Griffiths**
northwestchair@bsdht.org.uk

Secretary: **Jessica McGenn**
northwestsecretary@bsdht.org.uk

Treasurer: **Alison Edisbury (Acting)**
northwesttreasurer@bsdht.org.uk

Trade Liaison: **Kathryn Mayo**
northwesttlo@bsdht.org.uk

NORTHERN IRELAND

Chair: **Rachael Lillie**
northernirelandchair@bsdht.org.uk

Secretary: **Gill Lemon**
northernirelandsecretary@bsdht.org.uk

Treasurer: **Jordan McCrea**
northernirelandtreasurer@bsdht.org.uk

Trade Liaison: **Niamh Adair**
northernirelandtlo@bsdht.org.uk

SCOTTISH

Chair: **Lynn Harris**
scottishchair@bsdht.org.uk

Secretary: **Kirsty Sim**
scottishsecretary@bsdht.org.uk

Treasurer: **Sandra Morgan**
scottishtreasurer@bsdht.org.uk

Trade Liaison: **Emma Hutchison**
scottishtlo@bsdht.org.uk

SOUTH EAST

Chair: **Jo Downs**
southeastchair@bsdht.org.uk

Secretary: **Sam Doyle**
southeastsecretary@bsdht.org.uk

Treasurer: **Adelle Cager**
southeasttreasurer@bsdht.org.uk

Trade Liaison: **Sarah Breslin**
southeasttlo@bsdht.org.uk

SOUTH WEST AND SOUTH WALES

Chair: **Harriet Elsworthy**
swswchair@bsdht.org.uk

Secretary: **Lynn Chalinder**
swswsecretary@bsdht.org.uk

Treasurer: **Alison Brown**
swswtreasurer@bsdht.org.uk

Trade Liaison: **Jennifer Jenkins**
swswtlo@bsdht.org.uk

SOUTH WEST PENINSULA

Chair: **Morag Powell**
southwestchair@bsdht.org.uk

Secretary: **VACANT**
southwestsecretary@bsdht.org.uk

Treasurer: **Bianca Webber**
southwesttreasurer@bsdht.org.uk

Trade Liaison: **Bianca Webber**
southwesttlo@bsdht.org.uk

SOUTHERN

Chair: **Samantha Martin**
southernchair@bsdht.org.uk

Secretary: **Karen Poulter**
southernsecretary@bsdht.org.uk

Treasurer: **Karenn Helmrichne-Davila**
southerntreasurer@bsdht.org.uk

Trade Liaison: **Jessica Davies**
southerntlo@bsdht.org.uk

THAMES VALLEY

Chair: **Keileigh Lerston**
thamesvalleychair@bsdht.org.uk

Secretary: **Keileigh Lerston**
thamesvalleysecretary@bsdht.org.uk

Treasurer: **Sarah Turnbull**
thamesvalleytreasurer@bsdht.org.uk

Trade Liaison: **Sarah Turnbull**
thamesvalleytlo@bsdht.org.uk

NSK
Create it

SAVE THE DATE

The Regeneration Course is back!

Don't miss this exclusive opportunity to experience a unique combination of lecture and hands-on workshops presented by **Prof Luigi Nibali** accompanied by **Dr Varkha Rattu.**

Brought to you by NSK, The Regeneration Course is a masterclass in Minimally Invasive Surgical/ Non-Surgical Treatment for all clinicians - specialists, dentists, hygienists and therapists. During the afternoon sessions delegates will have the opportunity to gain 'hands-on' experience with NSK handpieces and equipment suitable for minimally invasive techniques.

Saturday 27th September 2025 - Letchworth, North London

Morning Session

A joint 2-handed lecture for all clinicians - specialists, dentists, hygienists and therapists. The cohort will learn the theoretical aspects of:

- Infrabony defects – causes, types, classification
- Wound healing – with a particular focus on regeneration vs repair
- Principles and techniques used in regenerative surgery
- Principles and techniques used for minimally invasive non-surgical therapy (MINST)

Afternoon Session

Surgical/Non-surgical workshops

Running concurrently, delegates can choose to join either the MIST (surgical) or MINST (non-surgical) hands-on workshops.

MIST Workshop – Prof Nibali

- Introduction to regenerative/reconstructive periodontal surgical techniques
- Introduction to regenerative/reconstructive periodontal materials
- Hands-on session of minimally-invasive flap designs used for periodontal regenerative/reconstructive surgeries using pig's heads and biomaterials.

MINST workshop – Dr Varkha Rattu

- Practical 1: Understanding defect anatomy
- Practical 2: Understanding tools used for MINST
- Practical 3: Understanding biology of MINST
- Practical 4: The MINST protocol (on specialised models with infrabony defects)

Full Course details are available at **mynsk.co.uk/courses-events/nsk-courses**

NSK United Kingdom LTD www.mynsk.co.uk
Office 4, Gateway 1000 Arlington Business Park, Whittle Way Stevenage, SG1 2FP, UK - info@nsk-uk.com - 0800 6341909