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INTERVIEW

Endodontist Dr Ruth Pérez-Alfayate is a speaker at this year's ROOTS SUMMIT. She discusses the challenges and methodologies of complex endodontic diagnostics.

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A study presents the long-term effectiveness of LAPIP in treating peri-implantitis, showing significant bone regeneration and reduction of clinical signs of disease.

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Learn more about dental conferences in the UK, including the World Endodontic Congress in Glasgow and the British Orthodontic Conference in Birmingham.

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Tooth wear and bruxism: Dentistry's hidden struggle

Insights into managing an overlooked condition.

By Dr Paul Tipton, UK

When it comes to tooth wear, there are two primary aetiologies that I as a practising dentist encounter most frequently. The first, erosion, is often linked to dietary habits. An excessive intake of acidic beverages, including fizzy drinks and alcohol, particularly those with added citrus like lemon, contributes significantly to dental erosion. Additionally, the prevalence of modern diets high in acidic fruits further exacerbates this condition. Medical issues such as bulimia and gastro-oesophageal reflux disease also play a role, as they introduce gastric acids to the oral environment. The second major aetiology is attrition, largely due to bruxism. This physical wear is often a response to psychological stress, which has become increasingly common in our fast-paced society.

The prevalence and consequences of bruxism

Various reports suggest that 5%-30% of the population clench and



grind their teeth to some degree, and virtually everyone will brux at some point.^{1,2} It is, in fact, a more significant issue than dental caries and periodontal disease in terms of prevalence.

Bruxism-induced tooth wear gives rise to occlusal disease. Occlusal disease encompasses problems arising from abnormal or harmful contact between the maxillary and mandibular teeth. This includes joint and muscle problems, breakdown of dental restorations, and broader implications for

overall health and well-being. The condition often affects one or possibly two components of the masticatory system, typically not all at once. If the temporomandibular joints are affected, it can lead to joint pain, difficulties in chewing and joint sound phenomena. Muscle involvement often results in headaches, myofascial pain and retro-orbital discomfort. Besides tooth wear, fillings and other restorations can break, and the periodontal ligaments can become stressed, leading to tooth mobility.

It may have further repercussions, depending on the way sufferers respond to these symptoms. For instance, this condition often leads to heightened tooth sensitivity, prompting a shift towards softer food choices. Consequently, individuals tend to consume foods rich in carbohydrates while avoiding tougher textures, like meats, which are more challenging to chew. This dietary adjustment can result in a notable reduction in protein and fibre intake, thereby potentially affecting overall body health.³ Such changes in eating

patterns not only affect oral health but can also have far-reaching implications on the individual's general well-being, both physical and psychological.

Prevention and treatment

Managing bruxism and occlusal disease requires a multifaceted strategy, having the primary aim of alleviating stress. In treatment terms, the first line of defence in managing bruxism is the use of occlusal splints. These devices, when correctly designed and used, can prevent further damage to the teeth and jaw. However, their effectiveness depends on factors like design, cost and patient compliance.^{4,5}

Understanding the theory behind splints is crucial, as some types can worsen the condition. For example, soft splints, which are generally the only option available on the National Health Service, can be helpful for some but detrimental for others, whereas hard acrylic, fully adjusted splints offer more predictable results.⁵

When teeth are already damaged, restorative treatment becomes necessary. This can range from using composite materials for minor repairs to full reconstructions using ceramics or gold, the latter of which is particularly well accepted by older patients. The choice of material and technique must be tailored to each patient's specific needs and circumstances. Restorative treatments also need to take into consideration the correct occlusal principles to ensure longevity of the restorations and health of the masticatory system.

The role of general dentists

General dentists can manage a significant proportion of cases involving bruxism and occlusal disease. Continuing education and practical training are crucial for dentists to diagnose, treat and manage these conditions effectively.⁶ About 80%-90% of treatments fall within the scope of general dental practice, the remaining cases requiring specialist referral.

It is not at all as daunting as you might think when you consider that to treat bruxism dentists need to understand just five principles:

1. **Establish temporomandibular joint position:** Our initial approach focuses on aligning the temporomandibular joints into their proper position, that is, either centric relation or retruded axis position. Despite the different terminologies used in occlusion, both terms signify the same position, aiming to align the condyles correctly.

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Steven Bartlett announced as headline speaker at BDCDS

British podcaster to inspire clinicians to implement new strategies in their practices.

Steven Bartlett, entrepreneur, speaker, investor, best-selling author and the host of Europe's No. 1 podcast *The Diary of a CEO*, will be speaking at this year's British Dental Conference & Dentistry Show (BDCDS), which is taking place alongside

Dental Technology Showcase at the National Exhibition Centre Birmingham. Bartlett is an accomplished investor in the health and wellness space, having made notable investments in Huel—the UK e-commerce company that is

growing the fastest internationally—and ZOE—a personalised nutrition programme created by top scientists. His popular podcast has become a hit as an unfiltered journey into the remarkable stories and untold dimensions of the world's

most influential people, experts and thinkers.

Bartlett's session promises to ignite new ideas and strategies

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Steven Bartlett.



Dentistry in England: A national disgrace?

DIY dentistry, dental deserts, staff shortages.

By Iveta Ramonaite,
Dental Tribune International

The British government has recently published the much-anticipated recovery plan for National Health Service (NHS) dentistry in a policy paper, yet many dental professionals have found it to be somewhat underwhelming. Primarily designed to enhance the availability of dental services in the country for those desperately seeking dental care, the plan falls short of meeting the government's stated ambitions and fails to effectively address the overwhelming backlog and to resurrect dentistry in England.

the number of dentists providing care in the state-funded NHS stands at its lowest level in a decade. According to data from the Organisation for Economic Co-Operation and Development, the UK has a shocking 49 public dentists per 100,000 inhabitants.

"The government keeps saying it wants everyone to be able to access NHS dentistry. But there's no sign of a credible plan to make that a reality, and no willingness to break from the failed contract," the BDA said in a press release.

Unable to access dental care in their own country, some UK nationals

Seeking to ease the crisis, the UK government will now be offering financial compensation ranging from £15 (€18) to £50 to dentists who accept new patients, in order to ease the staffing shortage. The total government funding for this step is £200 million. Approximately 240 dentists will additionally be offered one-off payments of up to £20,000 for working for at least three years in underserved areas.

Other measurements include a major focus on prevention and good oral health in young children and the launch of dental vans to help reach isolated communities. Plans are also in place to expand the NHS dental workforce. This includes increasing the number of dental undergraduate training places and facilitating the recruitment of overseas dentists.

"The health service will now introduce a wide range of practical measures to help make it easier for people to see a dentist, from incentivising dentists to take on new patients to supporting dentists to be part of the NHS in areas where access is challenging," NHS England CEO Amanda Pritchard said.

However, many dental professionals have expressed doubt over the new reform. Dr Shawn Charwood, chair of the BDA's General Dental Practice Committee, commented that the recovery plan was not worthy of the title. He noted: "It won't halt the exodus from the workforce or offer hope to millions struggling to access care."

"Nothing here meets government's stated ambitions, or makes this service fit for the future," he concluded.

The policy paper, titled *Faster, Simpler and Fairer: Our Plan to Recover and Reform NHS Dentistry*, can be accessed at www.gov.uk.

Faster, simpler, fairer

Access to dental care is now promised to be faster, simpler and fairer.

NHS dentistry is on a slippery slope. Just recently, the British Dental Association (BDA) described it as a national embarrassment, saying on its website: "Ministers need to take some responsibility. A wealthy twenty-first-century nation is slipping back to the Victorian era on their watch."

The country is seeing a concerning incidence of dental caries and dental sepsis in toddlers, a DIY dentistry epidemic, unattainable NHS targets and the return of scurvy. Additionally,

are resorting to seeking it in Ukraine, despite it currently being a war zone. Worryingly, the statistics do not paint an optimistic picture. According to data published in *The Economist*, the UK trails behind both Ukraine and Rwanda when it comes to timely access to care—an especially sobering fact in light of the last being a developing country.

Page 1 "BDCDS"

among dental professionals and will delve into the intersection of entrepreneurship, technology and healthcare, providing a unique perspective that is both relevant and forward-thinking. His insights into the power of social media and digital marketing are invaluable for dental practices aiming to modernise and expand their reach. His passion and expertise when it comes to team culture will be especially pertinent for dental practice owners, who often face

the challenge of instilling a cohesive ethos while also focusing on their clinical role. This year's BDCDS, renowned for being a hub of innovation and learning, takes things a step further by integrating these critical aspects of business growth and patient engagement.

The BDCDS, set to be held on 17 and 18 May, is the perfect stage for this engaging session. Bartlett's fireside chat will be taking place in the BDA Theatre on Saturday, 18 May, at 11:50 a.m.

Attendees can expect not only to learn but also to be inspired to implement new strategies in their practices. This event marks a significant milestone in the show's history, symbolising a commitment to embracing broader business knowledge and innovative thinking. Don't miss this opportunity to witness a fusion of dental expertise and entrepreneurial brilliance, all under one roof.

For more information and to register, please visit birmingham.dentistryshow.co.uk.

Page 1 "Tooth wear"

2. *Ensure tooth contact:* Once the temporomandibular joints have been accurately positioned, it is crucial to verify that all teeth make simultaneous contact. This uniform contact across all teeth is essential for a comfortable occlusion.
3. *Ensure anterior guidance during movement:* In protrusive, retrusive and lateral movement, it is important that the anterior teeth facilitate the sliding motion while the posterior teeth disengage. This anterior guidance is key to proper dental function.
4. *Avoid posterior tooth interference:* During various movements, including bruxism, it is important to ensure that the posterior teeth do not interfere with one other. This means avoiding non-working side, or balancing side, interferences, which create Class 2 leverage, to maintain oral health.
5. *Establish posterior tooth stability:* The focus here is on ensuring that the forces exerted on the posterior teeth are directed down the long axis of each tooth. This approach seeks to ensure that every posterior tooth has three points of contact to prevent tilting and maintain stability.

The key to managing these conditions lies in education. Understanding the principles of occlusion, the mechanics of splint therapy and the nuances of restorative treatments is essential. Dentists must be proactive in identifying signs of bruxism and occlusal disease and should not hesitate to implement appropriate interventions, such as splints, to prevent further damage.

Embracing a holistic approach

As dental professionals, we must integrate these insights into our practice, ensuring comprehensive

care for our patients. This approach not only addresses immediate dental concerns but also considers the broader implications for the patient's overall health and quality of life.

Editorial note: Dental professionals who would like to know more about this topic are invited to attend Dr Tipton's presentation titled "Treatment options for the bruxist and wear patient", which he will be delivering on 17 May at the British Dental Conference & Dentistry Show in Birmingham. More information can be found at birmingham.dentistryshow.co.uk.

References

1. Manfredini D, Winocur E, Guarda-Nardini L, Paoletti D, Lobbezoo F. Epidemiology of bruxism in adults: a systematic review of the literature. *J Orofac Pain*. 2013 Spring;27(2):99-110. doi: 10.11607/jop.921.
2. Maluly M, Andersen ML, Dal-Fabbro C, Garbino S, Bittencourt L, de Siqueira JT, Tufik S. Polysomnographic study of the prevalence of sleep bruxism in a population sample. *J Dent Res*. 2013 Jul;92(7 Suppl):975-1035. doi: 10.1177/0022034513484328.
3. Toyama N, Ekuni D, Fukuhara D, Sawada N, Yamashita M, Komiya M, Nagahama T, Morita M. Nutrients associated with sleep bruxism. *J Clin Med*. 2023 Mar 31;12(7):2623. doi: 10.3390/jcm12072623.
4. Hardy RS, Bonsor SJ. The efficacy of occlusal splints in the treatment of bruxism: a systematic review. *J Dent*. 2021 May;108:103621. doi: 10.1016/j.jdent.2021.103621.
5. Ainoosah S, Farghal AE, Alzemei MS, Saini RS, Gurmurthy V, Quadri SA, Okshah A, Mosaddad SA, Hebayan A. Comparative analysis of different types of occlusal splints for the management of sleep bruxism: a systematic review. *BMC Oral Health*. 2024 Jan 5; 24(1):29. doi: 10.1186/s12903-023-03782-6.
6. Ommerborn MA, Taghavi J, Singh P, Handschel J, Depprich RA, Raab WH. Therapies most frequently used for the management of bruxism by a sample of German dentists. *J Prosthet Dent*. 2011 Mar;105(3):194-202. doi: 10.1016/s0022-3913(11)60029-2.

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is an internationally acclaimed specialist in prosthodontics who has worked in private practice for over 30 years. He seeks to share his experience and expertise through the postgraduate and continuing education of dental professionals. To that end, he is a visiting professor lecturing in restorative and cosmetic dentistry at the City of London Dental School in the UK and founded Tipton Training, one of the UK's leading private dental training academies. More information can be found at tiptontraining.co.uk.



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Delivering health screening in dental practice

Study emphasises role of dental professionals in screening patients for chronic disease.



By Franziska Beier,
Dental Tribune International

The connection between oral health and chronic disease has been increasingly supported by substantial evidence, revealing shared risk factors and inflammatory processes. In light of these findings, researchers from the Royal Liverpool University Dental Hospital and the University of Plymouth have conducted a study that involved the introduction of health screenings during regular dental check-ups in general dental practices. They found that dental professionals could make a positive difference to public health by being trained to spot some of the key markers of chronic disease.

According to the study authors, reports show that in the UK alone up to 11% of the adult population is

affected by impaired glucose regulation and nearly half of dental patients aged 45 years and older are at risk of developing diabetes within the next decade. These numbers indicate the potential benefits and positive impact of implementing diabetes screening in dental settings, particularly for early intervention in Type 2 diabetes.

The study aimed at evaluating the service of health screening in dental settings, including patient willingness to accept such a service and recommendations for improvement. The data was gathered from two dental practices located in North West England and the Welsh border region, one a predominantly National Health Service (NHS) practice and the other offering a mix of NHS and private dental services. The data collection

spanned from August 2020 to November 2021 at the first practice and from February 2021 to January 2023 at the second. At the NHS practice, 4.1% of the 11,200 patients accepted the offer for screening and 6.5% of the 871 patients at the mixed practice.

The screenings included assessments of blood pressure, cholesterol, blood glucose, body mass index (BMI) and waist-to-height ratio—crucial for detecting early signs of cardiovascular diseases and Type 2 diabetes in healthy adults. The selection of these specific screening tests was based on their relevance to oral health and shared risk factors for oral health complications, such as diet and chronic inflammation.

The findings showed that 78.4% of the patients screened had blood pressure readings above the normal range, 55.8% had BMI values that fell outside the healthy range and 16.7% had cholesterol levels that deviated from the healthy range. Elevated blood glucose levels were observed in just over 3% of the patients.

“We already place significant emphasis on training students to provide holistic care for their patients. We also promote the concept of oral health being an integral part of general health and well-being. While there are resource challenges to consider in NHS dentistry, this study shows there are enormous opportunities for dental teams to support their patients and work more closely with our medical and healthcare colleagues to benefit public health,” commented co-author

Dr Robert Witton, professor of community dentistry at the Peninsula Dental School of the University of Plymouth, in a press release.

The authors emphasised that clear protocols and careful interpretation of screening results are required to avoid patient confusion and frustration. Findings should always be interpreted in relation to the context of the dental setting; for example, patients delaying their meal until after having seen the dentist could account for the high proportion of patients with lower blood glucose levels. Additionally, high blood pressure could just be a sign of dental anxiety.

Closer collaboration between dental and medical care

Health screening in dental settings may significantly reduce morbidity, mortality and healthcare costs by preventing the acute onset of advanced chronic diseases. Dental practices, therefore, present a valuable opportunity for early screening, offering personalised interventions and, where necessary, serving as a referral point for early diagnosis.

Lead author Dr Janine Doughty, from the Royal Liverpool University Dental Hospital, said: “A health check at the dentist could provide reassurance for many patients, and a wake-up call for others to become healthier. We have someone already sitting in the chair who visits the dentist every six to 12 months yet who may not have seen a GP for years. It is simple to give

them a few minutes of health checks at the same time.”

In order to put the study findings to use, greater alliances between dental and general medical care will be needed, the study authors recommended. Strengthening partnerships between dentistry and other NHS platforms could support the NHS Long Term Workforce Plan’s goal of fostering collaborative efforts for the early detection of conditions linked to cardiovascular disease. By involving the entire dental health team in health screening, dental professionals can expand their practice scope and align with NHS England’s objective to fully utilise dental health teams’ potential.

Dental professionals can make a substantial difference

Health screenings conducted in dental settings provide a new opportunity to identify a significant number of patients who have risk factors for chronic disease, concluded the authors. They added: “Dental professionals can be successfully trained to deliver the screening interventions and are aptly placed for delivering brief lifestyle advice and signposting patients to general medical care or other appropriate clinical services.”

The study, titled “Opportunistic health screening for cardiovascular and diabetes risk factors in primary care dental practices: Experiences from a service evaluation and a call to action”, was published online on 10 November 2023 in the *British Dental Journal*.

Team harmony as a key factor for the mental well-being of dental professionals

One third of UK dental professionals report disrespectful behaviour from colleagues.

By Dental Tribune International

A recent survey conducted by Dental Protection—a leading protection organisation for doctors, dentists and other healthcare professionals—has found that dental professionals in the UK recently experienced an increase in disrespectful behaviour from colleagues compared with during the height of the COVID-19 pandemic. The organisation emphasises that such an experience can impact the mental well-being of dental professionals, potentially leading to poorer patient care or absenteeism from work. To support its members, Dental Protection provides a counselling service tailored for those in the dental profession.

The survey was completed by 1,379 Dental Protection members between 20 March and 17 April 2023. The respondents reported that 30% of them had observed or encountered an increase in disrespectful

behaviour from colleagues, 35% having witnessed or been subjected to such behaviour in the last 12 months. Among those who had experienced or observed disrespectful behaviour from colleagues, 65% reported that it had had a significant or moderate impact on their mental well-being.

Dr Raj Rattan, MBE, dental director at Dental Protection, commented in a press release that poor mental well-being is concerning for the dental professional and can have a negative effect on the patient relationship and patient care. It may result in absenteeism for dental professionals, and those severely affected might even consider leaving the dental workforce to pursue a career in a different field.

“During challenging times, the need for civility and respect is even greater. A difficult day can feel much worse if interactions with colleagues are strained, or if you feel you have



been treated disrespectfully,” he added.

“We know that for any team to succeed, each member must feel valued, respected and supported. Maintaining team harmony in the workplace is the key to organisational success and dentistry is no exception,” he emphasised.

Dr Rattan encourages dental professionals to look into the Civility Saves Lives campaign. “While, as the name suggests, it is more aimed at the medical community, its key principles apply to all working in healthcare—namely that when we are in a team which values and respects us, the benefits impact us and our patients,” he explained,

continuing: “Importantly, it also reminds us that incivility encompasses a range of behaviours such as rudeness, verbal abuse and bullying. We should also be mindful of cyber-incivility which violates our ethical duty to maintain mutual respect within the team.”

In addition, he recommends that Dental Protection members facing mental well-being concerns stemming from interactions in the workplace use the organisation’s counselling service and other well-being support. “The service is provided through a third-party partner and is completely confidential,” he said.

More information about the Civility Saves Lives campaign can be found at www.civilitysaveslives.com. More information about Dental Protection’s services is available at www.dentalprotection.org.

UK researchers develop effective new xerostomia solution

Study paves way for new dry mouth therapy.

By Franziska Beier,
Dental Tribune International

Xerostomia is a prevalent condition especially among older adults, cancer patients and people taking multiple medications. Researchers at the University of Leeds have developed a saliva substitute to alleviate the discomfort of patients suffering from dry mouth. The novel solution mimics natural saliva in its ability to moisten the mouth and serve as a lubricant during food intake. It comes in a dairy and a vegan formulation, and *in vitro* experiments have found it to be more effective than other commercially available products.

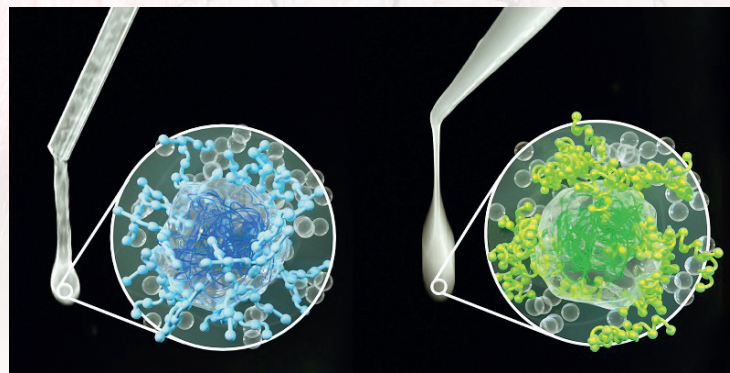
According to a 2018 systematic review, xerostomia affects roughly 22% of the global population and can lead to severe complications. The global rise in xerostomia cases in recent years is attributed to increased polypharmacy and use of cancer-related radiation therapies and a growing incidence of chronic, neurodegenerative and autoimmune diseases like Sjögren's syndrome, coupled with the significant growth of the global ageing population.

Although a broad range of saliva substitutes are available, they do not

relieve xerostomia for a sufficient period of time. Prof. Anwesha Sarkar, who led the development of the saliva substitute and is chair in colloids and surfaces at the School of Food Science and Nutrition at the university, commented in a press release: "The problem with many of the existing commercial products is they are only effective for short periods because they do not bind to the surface of the mouth, with people having to frequently reapply the substance, sometimes while they are talking or as they eat. That affects people's quality of life."

The newly developed saliva substitute, a microgel-reinforced hydrogel-based lubricant, was evaluated against eight existing commercial products, including well-known brands such as Biotène from GSK, Glandosane from Fresenius Kabi, Saliveze from Wyvern Medical, and Oralieve. The experiments were conducted on an artificial tongue-like surface.

The study found that the saliva substitute provided significantly enhanced boundary lubrication, being 41%–99% more effective against liquids and viscous substances compared with current products. This result is primarily due to its adsorption proper-



Graphical representation of the structures of the dairy-based lubricant (left) and the vegan version (right). The proteins of the hydrated microgel (dark blue and dark green mesh-like structures) are partially coated by a hydrogel made from a polysaccharide. (Image: © Anna Tanczos)

ties, which enable it to bind more effectively to oral surfaces. In contrast to the 23%–58% desorption rate observed with commercial alternatives, the novel saliva substitute demonstrated a notably lower desorption rate of 7%. In addition, the research team observed that the dairy formulation showed slightly better performance than its vegan counterpart.

Lead author Dr Olivia Pabois, a postdoctoral research fellow at the university, said: "The test results provide a robust proof of concept that our material is likely to be more effective under real-world conditions and

could offer relief up to five times longer than the existing products that are available."

She added: "The results of the benchmarking show favourable results in three key areas. Our microgel provides high moisturisation, it binds strongly with the surfaces of the mouth and is an effective lubricant, making it more comfortable for people to eat and talk."

The first formulation of the new solution is based on a dairy protein and the vegan version based on a potato protein. The substances used in

the production of the saliva substitute are non-toxic and non-caloric.

Study limitations

While the study measured lubricity under conditions relevant to oral use, it did not assess the long-term hydration efficiency of the newly developed lubricant compared with competitive samples. Additionally, it has to be taken into consideration that the temperature of ingested products could potentially affect the lubrication properties of the saliva substitute.

Future applications

The study authors aim to transform the novel saliva substitute into commercially available products, intending to enhance the lives of individuals suffering from challenging dry mouth conditions. This extensive benchmarking study thus sets the stage for the use of these microgel-based aqueous lubricant formulations as an innovative approach to treating xerostomia.

The study, titled "Benchmarking of a microgel-reinforced hydrogel-based aqueous lubricant against commercial saliva substitutes", was published online on 20 November 2023 in *Scientific Reports*.

Benefits of water fluoridation may have peaked in rich countries

Have benefits of water fluoridation reached their limit?

By Franziska Beier,
Dental Tribune International

Researchers from the University of Manchester have conducted a pioneering study in the UK focusing on the oral health and economic impacts of water fluoridation on adults and adolescents, considering populations with widespread access to topical fluoride. While the findings indicate that water fluoridation remains beneficial, the advantages are not substantial. Therefore, in high-income countries, the potential benefits of fluoride treatment alone may have reached its zenith and other measures—such as fostering environments that support healthier food choices—may be more effective.

Initial research on the implementation of community water fluoridation to combat caries indicated a reduction of up to two-thirds in the average number of teeth affected. "Fluoridation of drinking water is justifiably recognised as one of the twentieth century's greatest public health achievements," said project lead Dr Deborah Moore, a research associate at the University of Manchester, in a press release.

Like with any public health intervention, continued monitoring is required, as the implementation context evolves over time. "[As] fluoride toothpastes became available in the mid-1970s—considered to be the key factor in the dramatic decline in the prevalence and severity of dental decay—the context of water fluoridation has changed," explained Dr Moore.

Even though the broader adoption of water fluoridation is considered an effective, cost-efficient public health strategy for lifelong protection against the gradual onset of caries, there is limited published evidence on its efficacy in adults. In high-income countries, the nature of caries has transformed from a fast-progressing childhood disease leading to early tooth loss to a more slowly advancing condition, and adults now bear the majority of its burden. Given the widespread use of fluoride toothpaste and the increasing number of individuals retaining their natural teeth into later life, in this new study, the research team sought to assess the dental health benefits for adults.

The researchers used routinely collected National Health Service (NHS)

dental treatment data submitted between 2010 and 2020. The study included individuals aged 12 years and older who were receiving care from NHS primary dental services in England, totalling 17.8 million patients. The analysis involved matching individuals with exposure to optimally fluoridated drinking water to those without, resulting in a sample of 6.4 million patients.

The findings showed that the average number of invasive NHS dental treatments, such as restoration and extraction, was 3% lower in the group with optimal water fluoridation, compared with the control group. Additionally, the average number of decayed, missing and filled teeth was 2% lower in the group with optimal water fluoridation. There was no notable difference in the average number of missing teeth per individual, and the data did not provide strong evidence that water fluoridation significantly influenced social disparities in dental health.

Implications for health economics

Between 2010 and 2020, the estimated cost of optimal water fluoridation

in England was £10.30 per individual. During this period, NHS dental treatment expenses for patients in areas with optimal fluoridation were reduced by 5.5%, equating to a saving of £22.26 per person.

"The patients who received optimal water fluoridation had very small positive health effects. But as the costs of NHS dentistry are much higher than the costs of water fluoridation, the relatively small observed reductions in visits to the dentist still resulted in a positive return for the public sector. This return should be evaluated against the projected costs and lifespan of any proposed capital investment in water fluoridation, including new programmes," said Dr Moore.

Fluoride only mitigates sugar intake

"There is no doubt that population-level, mass preventive interventions for tooth decay are still required. Tooth decay remains almost universal by adulthood, even in populations that have had access to fluoride toothpastes and fluoridated water from birth. However, in high-income countries, we may be reaching the limit of what

can be achieved through fluorides alone," commented Dr Moore.

The researchers emphasised that a dose-response relationship between dietary intake of free sugars and caries is evident, and fluorides merely mitigate this association. "The relationship between sugar consumption and tooth decay is very clear: average consumption of sugars in the UK is more than double the recommended level for adolescents and is almost double for adults. Managing sugar consumption is another area of policy that needs to be investigated," highlighted Dr Moore.

The study authors concluded that water fluoridation has made an unparalleled contribution to oral health in the twentieth century; however, for the twenty-first century, greater impact may be achieved by advocating healthy food intake.

The study, titled "How effective and cost-effective is water fluoridation for adults and adolescents? The LOTUS 10-year retrospective cohort study", was published on 8 January 2024 in *Community Dentistry and Oral Epidemiology*, ahead of inclusion in an issue.

European Parliament bans dental amalgam

EU ban on amalgam may cause UK supply chain issues, impacting Northern Ireland the most.



By Iveta Ramonaite,
Dental Tribune International

Amalgam is the restorative material of choice for many dentists. It is the gold standard of dental care. However, its popularity has been slowly declining in recent years and so has its use, all thanks to strict governmental regulations. Now, the European Parliament has announced that it will completely ban dental amalgam starting from 1 January 2025—news that came as

a shock to many dental professionals and organisations, especially those who have relied heavily on amalgam.

The use of dental amalgam, which consists of approximately 50% mercury, greatly contributes to mercury pollution and poses an environmental threat to ecosystems. Owing to rising health concerns about the material, stringent regulations have been imposed to phase down amalgam use and to ensure safe disposal in dental practices, in line with

the Minamata Convention on Mercury, which entered into force in 2017. Additionally, using the material for treating pregnant or breastfeeding women, as well as children under the age of 15, has been banned in the EU since 1 July 2018. Dentists in the Philippines have been prohibited from using amalgam as a restorative material since last year.

Growing disillusionment of dental services in the UK

The ban will greatly affect the UK's dental services, which have been struggling to recruit and retain dental professionals in recent years. According to the British Dental Association (BDA), amalgam is the material most commonly used for permanent fillings by the National Health Service (NHS). Additionally, the organisation stated that fillings account for approximately a quarter of all courses of NHS treatment delivered in England and that amalgam is used in around a third of all procedures.

Given its wide use, the EU ban on amalgam is expected to result in

supply chain issues in the UK. Since it has the most filled teeth proportionally, Northern Ireland will be the most affected UK nation.

Although the BDA supports amalgam reduction, it has called the rapid phase-out of amalgam in dental practices unfeasible and unjustifiable. It said: "Dental amalgam has been in use and extensively studied for 150 years as a restorative material. Its safety and durability are well established, and it remains the most appropriate material for a range of clinical situations."

Although alternatives exist, they are significantly more costly and take longer to place. BDA Chairman Dr Eddie Crouch commented in a press release: "When alternative materials can't compete, this will add new costs and uncertainties to practices already on the brink." According to him, banning amalgam would mean losing a key weapon in the treatment of dental caries, and he cautioned that this could be "the straw that breaks the back of NHS dentistry".

Amalgam-free restorative materials

Alternatives to amalgam include glass hybrid materials and high-viscosity glass ionomer cements. Each alternative offers unique advantages and disadvantages, and the choice often depends on the specific needs of the patient, including aesthetic considerations, durability requirements and financial constraints.

Prof. Falk Schwendicke summarised this in his recent article published on the Dental Tribune website: "There is not a single material that fulfils all the requirements for an amalgam replacement; instead, a range of materials with different properties are available, and dentists will need to make informed choices about which material suits which indication best."

"The era of dental amalgam is slowly coming to an end," he concluded. Breakthroughs in dental technology may lead to new, more advanced materials for dental restorations in the future.

SmileDirectClub leaves patients in the lurch

Company has announced that it no longer provides customer care.

By Jeremy Booth,
Dental Tribune International

The self-proclaimed democratiser of orthodontic care, SmileDirectClub (SDC) has abruptly shuttered its global business after less than ten years of operations. The Tennessee clear aligner company announced in December that it had failed to secure a financial lifeline in Chapter 11 bankruptcy proceedings and that it would consequently liquidate and end all services with immediate effect. According to media reports, the closure came as a surprise to thousands of SDC customers who were in various stages of orthodontic care and who must now consult a local dentist to continue their treatment.

Typically a patchwork of reviews, endorsements and promises of easy and cost-effective clear aligner therapy, SDC's website on 8 December was reduced to a landing page featuring a short statement and a few brief FAQs. The company had "made the incredibly difficult decision" to end its operations, the statement read, explaining that customer care was no longer available. Recent orders would not be fulfilled, the company's Lifetime Smile Guarantee was now void and any questions about ongoing treatment would need to be directed at local dentists, the FAQs explained. For those seeking a refund, the company said that the ongoing bankruptcy process would determine the next steps.



SDC filed for Chapter 11 bankruptcy protection in the US on 29 September, remaining in control of its business operations while seeking capital reorganisation under the oversight of the US Bankruptcy Court for the Southern District of Texas. At the time of the filing, SDC owed creditors nearly US\$900 million (£716 million) and had just US\$5 million in cash, despite having been valued at close to US\$9 billion when the company went public in 2019. Lawyers acting for the company told UK magazine *Dentistry* in October that the bankruptcy filing only affected its US business and that its UK and "other international affiliated entities have not sought any bankruptcy protection".

Despite being laden with debt, SDC continued to ship thousands of clear aligner cases to customers in Australia, Canada, Ireland, New Zealand, the US and the UK throughout 2023, and reports suggest that it continued to advertise and sell treatment even into the final throes of its global business. Public information shows that the company shipped 106,419 unique clear aligner orders in the first half of last year, and *The Guardian* highlighted the plights of US consumers who responded to SDC promotions as late as November. Kat Fernandez of Texas told the newspaper that she received an offer for SDC aligners that was "too good to be true"

and paid in full for the treatment on 3 November. "It infuriates me to know that they were aggressively pursuing [customers] so close to when they were going to pull out. I feel scammed and conned," Fernandez said.

Rebekka Reynolds of Oklahoma, who paid in full for her treatment in October, told the newspaper that she received news about the closure via social media and not from SDC. "I found out because a bunch of my TikTok followers started tagging me in videos, asking me what I was going to do. Then I looked it up and found out. That kind of blows my mind," Reynolds said.

In December, the UK's Oral Health Foundation voiced its concern about the ongoing orthodontic care of SDC patients. Dr Nigel Carter, OBE, chief executive of the foundation, said: "The closure of SmileDirectClub has created an upsetting situation for many patients who were undergoing dental treatments. We are extremely worried about what impact this will have on the oral health and mental well-being of thousands of people currently undergoing treatment."

"It all leaves a very bitter taste," Dr Carter said, adding: "Patients have been left in the lurch and it will now no doubt fall on orthodontists to rescue the situation for those SmileDirectClub customers who remain unhappy with their smile."

Founded in 2014, SDC was on a strong upward trajectory in 2019 when it went public on the Nasdaq stock exchange and installed 49 HP Multi Jet Fusion 3D printers at a new manufacturing facility. Running non-stop, the printers enabled SDC to produce 20 million clear aligner trays annually and made the company the largest user of this 3D-printing technology in the US. Prior to the SARS-CoV-2 pandemic—which hit the company particularly hard, owing to its disproportionate financial impact on its target market—SDC was a major employer in Tennessee and other US states and had a global headcount of 6,300 staff.

How to handle complex endodontic cases

An interview with ROOTS SUMMIT speaker Dr Ruth Pérez-Alfayate.

By Franziska Beier,
Dental Tribune International

From 9 to 12 May, the ROOTS SUMMIT 2024 is scheduled to take place in Athens in Greece. Registration for the event is still open, and the organisers would like to introduce some of the great speakers and their lecture topics for this year's event. One of them is endodontist Dr Ruth Pérez-Alfayate from Madrid in Spain. In this interview, she introduces her lecture, titled "Complex diagnosis in endodontics", and explains why she decided to speak at the congress.

Dr Pérez-Alfayate, in some of the more complex endodontic cases, dental professionals have to use invasive tests in order to be able to make a clear diagnosis. For which cases are these invasive tests appropriate, and how do dental professionals keep a balance between invasive treatment measures and the desire to keep the treatment minimally invasive?

These tests might be appropriate when there is doubt about a vertical root fracture, when there is severe pulpitis, when more than one tooth is suspected of this pathology and is radiated, or when pulp necrosis needs

to be identified in a patient presenting with a low pain threshold.

The balance, in my opinion, can be found when we understand the expectations of our patients in the first instance. Patient safety, the concept of "do no harm" and minimally invasive treatment should prevail and must be a priority for us. All of these concepts can still be applied even when we need to use invasive tests for diagnosis.

In some cases, even after the use of diagnostic tests, the dental professional can be left with a high level of doubt. What is the reason for this?

The reality is that currently we do not have any test that is 100% objective. This means that one or two tests are not sufficient. We need to find a diagnostic protocol that gives us as much information as possible.

What are some of the endodontic diagnostic tests for complex cases, and why can they be challenging?

The diagnostic tests include exploratory surgery, selective anaesthesia and cavity testing. Deciding when or when not to use them is the challenge.



Dr Ruth Pérez-Alfayate, an associate professor at the Faculty of Biomedical and Health Sciences at Universidad Europea in Madrid in Spain.

Are there any future developments in endodontic diagnostics that you can tell us about?

Some researchers are working on various devices, such as pulse oximeters, real-time ultrasound and ways to

evaluate the actual pulp status before conducting treatment.

What will be the main learning objectives of your lecture at ROOTS SUMMIT 2024?

I will describe a diagnostic protocol for endodontists to enable them to understand which clinical situations require a complex diagnosis, and I will propose how they should act in these specific situations.

What made you decide to participate in the upcoming ROOTS SUMMIT?

I have attended this congress many times, and I have to say it is one of my favourites. Also, the organisers of ROOTS SUMMIT are three people whom I admire greatly, and when they ask you to come to their congress, it is impossible to say no—it is an immense privilege.

I know I will learn a great deal from the best and humblest endodontists in the world. I am sure this will be a great congress, and I hope to see as many people as possible there. Do not miss it!

Editorial note: The lecture by Dr Pérez-Alfayate, titled "Complex diagnosis in endodontics", will be held on 10 May from 11:00 a.m. to 12:30 p.m. More information on the programme and registration can be found at www.roots-summit.com.

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