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Ireland's

Dental

AUTUMN 2026

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TOUGH TECHNOLOGIES IN DENTISTRY

How education and clinical practice
are being transformed, p14-22

Plus: World Health Organization oral health policy launched in Dublin, p13

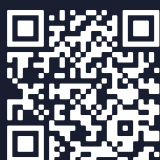


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- 05** Editorial: Time for decisive action on Northern Ireland's dental crisis
- 06** Word of Mouth: Keeping your cool is sometimes the greatest feat of endurance in dentistry
- 08** News: Trinity College Dublin graduate wins global award; New dental brokerage service launched in Ireland

FEATURES

- 13** WHO oral health policy launched in Dublin
- 14** Learning clinical skills with touch technologies
- 20** From optional innovation to essential competence

CLINICAL

- 24** Transcrestal sinus elevation in extremely atrophic bone

MANAGEMENT

- 30** Reflections on dentistry, 40 years on

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Time for decisive action

Executive financial backing and bold contract reform are needed to prevent the collapse of Health Service dentistry

The most pressing issue in dentistry in Northern Ireland is the collapse of Health Service (HS) dental access, driven by an outdated and underfunded payment model. The British Dental Association (BDA) has described public dental care in Northern Ireland as a “disappearing service” on the brink of total collapse. As well

as issues with the payment model, dentists are increasingly moving to private care. Recently published figures revealed that the average gross earnings for self-employed dentists in the north rose to an estimated £184,700 in 2024/25, an increase of 16.4% on the previous year (after deducting costs, it left self-employed dentists with an average, taxable, income of £87,600 per year).

Key factors contributing to this crisis include:

- Plummeting patient registration: levels dropped to 49% of the total population (and an all-time low of 44% for adults); down sharply from around 70%. In some areas, such as Fermanagh and Omagh, adult registration has fallen to just 30%.
- Outdated payment structure: high-street dental practices are funded under a outdated payment model that fails to cover the true operational costs of treatment. As inflation and overheads rise, dentists are increasingly forced to deliver HS treatments at a financial loss, leading many to reduce their HS hours or switch entirely to private practice.
- The amalgam phase-out: regulations restricting and phasing out the use of dental amalgam (mercury fillings) have placed additional pressure on dentists. Alternative white-filling materials are more expensive and take longer to place, which further squeezes the viability of health service dentistry without fee reform.

While Stormont MLAs and Health Minister Mike Nesbitt have pledged targeted investments, including a £2m Activity Support Payment and targeted fee boosts, and has called for reform, dental bodies continue to press the Department of Health for the publication and implementation of a Cost-of-Service review to create a fair, modern payment model.

But if the Northern Ireland Executive is to prevent public dentistry from vanishing entirely into a private-only model, it must move beyond crisis management and deliver three decisive reforms:



THE EXECUTIVE MUST MOVE BEYOND CRISIS MANAGEMENT AND DELIVER DECISIVE REFORMS”

Fast-track and act on the Cost-of-Service Review

For decades, high-street practices have been shackled to an antiquated fee-per-item payment model. Skyrocketing overheads mean practitioners routinely deliver Health Service care at a financial loss. The Department of Health's long-awaited Cost-of-Service Review must be published and fully funded without delay. The Executive must commit to replacing the current contract with a modernised, sustainable fee structure – drawing inspiration from Scotland's overhauled model – that reflects real-world operational costs.

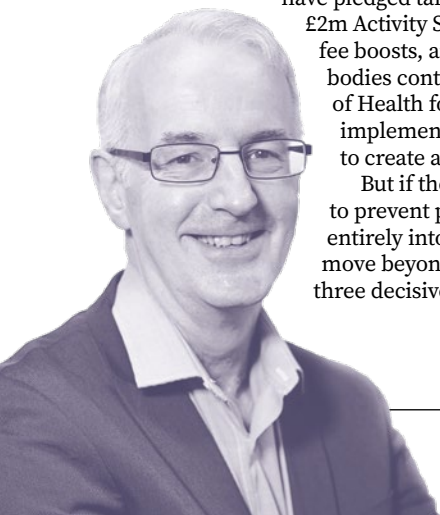
Fund the amalgam phase-out transition

The European Union-driven phase-out of dental amalgam has disproportionately squeezed Health Service providers. White filling alternatives require more time and vastly higher material expenses. Asking dentists to absorb these costs under legacy fee tariffs is pure fantasy. Stormont must establish dedicated financial backing for composite materials and longer appointment slots to ensure clinical viability.

Invest in prevention and workforce capacity

Fixing the contract is pointless without the workforce to deliver it. Northern Ireland needs a refreshed, fully funded Oral Health Strategy focused on early intervention and child health. Expanding Dental Foundation Training (DFT) places and improving retention incentives will stabilise the clinical pipeline, preventing newly qualified talent from migrating immediately to private practice or overseas.

Plasters will no longer stop the bleeding. Only Executive financial backing and bold contract reform can ensure that access to a dentist in Northern Ireland remains a public right rather than a private luxury.



When the surgery becomes a sauna

The Irish weather rarely gives us much to complain about when it comes to extremes. We spend most of the year wishing for sunshine, and then, when it finally arrives, many of us discover that our workplaces were never designed to cope with it. Few environments highlight this more starkly than the dental surgery.

For most people, a heatwave means garden furniture, barbecues and perhaps a trip to the coast. For dentists, it often means eight hours under bright operating lights, wrapped in layers of personal protective equipment, concentrating intensely while trying not to let perspiration become an additional instrument in the operative field.

Dentistry has always been physically demanding. Patients see the precision and concentration required to restore a tooth or perform a difficult extraction, but they rarely appreciate the physical effort that accompanies every procedure. Maintaining static postures, leaning forward for prolonged periods and sustaining intense visual focus places considerable strain on the neck, shoulders and lower back. Add thirty-degree temperatures into that equation and the challenge increases significantly.

Unlike many professions, dentistry offers little opportunity to simply “take it easy” when the mercury rises. A crown preparation still requires absolute precision. An endodontic procedure still demands complete concentration. A child with toothache is no less anxious because the outside temperature has reached record levels. The standards expected of clinicians remain unchanged regardless of the weather.

The irony is that much of modern dentistry has become more comfortable for patients while becoming more demanding for clinicians. Air-conditioned waiting rooms may provide welcome relief, but surgeries often generate additional heat from curing lights, compressors, digital equipment and overhead operating lamps. Even where air conditioning exists, infection prevention requirements frequently limit airflow and open windows, creating an environment that can quickly become uncomfortable.

Then there is the uniform. Clinical attire has evolved considerably over recent years, with enhanced PPE becoming routine practice. Masks, eye protection, visors, gloves and disposable gowns all contribute to maintaining patient safety. They also trap heat remarkably effectively. By the middle of a

busy afternoon list, many clinicians have discovered that staying hydrated has become as important as having enough composite resin.

Dehydration, however, is more than simply uncomfortable. Even mild dehydration has been associated with reduced concentration, slower reaction times and increased fatigue. In a profession where millimetres matter and decisions are made continuously throughout the day, maintaining cognitive performance is every bit as important as remaining physically comfortable. Perhaps the greatest challenge during periods of extreme heat is not the temperature itself but the cumulative effect it has on wellbeing. Dentistry already ranks among the more psychologically demanding healthcare professions. Clinical decision-making, time pressures, patient anxiety, financial considerations and regulatory responsibilities all compete for attention. Heat simply amplifies existing stresses.

Anyone who has reached the end of a fully booked summer clinic will recognise that peculiar form of exhaustion that seems disproportionate to the day's work. It is not simply physical tiredness; it is cognitive fatigue. Decision-making becomes slower, posture deteriorates, patience is tested and even routine administrative tasks appear to require greater effort.

This is where good leadership – whether of a practice or of oneself – becomes particularly important. Simple measures make a surprising difference. Beginning the day well hydrated rather than trying to catch up later. Scheduling brief opportunities between patients to cool down. Adjusting appointment lengths for particularly complex procedures when feasible. Encouraging every member of the dental team to take genuine lunch breaks rather than eating hurriedly over clinical notes. None of these interventions are revolutionary, yet collectively they protect both staff wellbeing and patient safety.

Practice owners also have an opportunity to think strategically. Climate scientists tell us that hotter summers are likely to become more frequent rather than less. What was once considered exceptional may gradually become normal. Investment in effective ventilation, efficient climate control and ergonomically designed surgeries should increasingly be viewed not as luxuries but as components of a resilient healthcare environment. There is another lesson hidden within the heatwave. Dentists have traditionally prided themselves on resilience. We work through discomfort. We rarely cancel clinics. We often regard fatigue as simply another part of professional life. While admirable, resilience should never become an excuse for ignoring human limitations. Looking after ourselves is not self-indulgence; it is an essential component of delivering consistently safe, high-quality patient care.



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Trinity College Dublin graduate wins global award

Awards recognise and celebrate outstanding contributions from dental hygienists

JANET Williams Oshun, a Registered Dental Hygienist (RDH) and graduate of Trinity College Dublin, has been announced as the winner of the New RDH category in the World Dental Hygienist awards. Winners were awarded across six categories: Public Health, Full-Time Clinician, New RDH, Research, Academia and Entrepreneur.

Presented by the Sunstar Foundation and the International Foundation of Dental Hygienists (IFDH) and supported by GUM, Sunstar's global oral health brand, the awards recognise and celebrate outstanding contributions from dental hygienists across the globe.

Janet's work is centred on the management of periodontal disease and dental anxiety, with a strong focus on prevention and patient education. Her career extends beyond the clinical setting into research, education, public speaking, and community outreach. Her work has explored the impact of ethnic and cultural oral practices on oral health, helping to highlight the importance of culturally inclusive approaches to dental care.

She is committed to widening access to oral healthcare through advocacy and voluntary work with the Irish Dental Hygienists' Association. Alongside her professional involvement, Janet has delivered oral health presentations to a wide range of

vulnerable communities and collaborated with dental brands to provide take-home educational resources and samples.

"To be recognised on a global level so early in my career is incredibly meaningful," said Janet, "and it inspires me to continue learning, growing, and contributing to the advancement of our profession. I'm deeply thankful to the Sunstar Foundation, the IFDH jury and to all my family, friends and patients for their votes and support along the way."



Janet Oshun (left) receiving her award

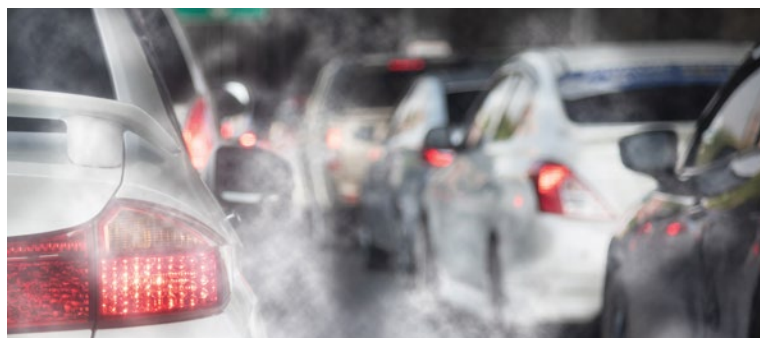


Image credit: khunkornStudio / Shutterstock

Air pollution can worsen periodontal disease

EXPOSURE to fine particulate matter (PM2.5), a significant component of urban air pollution, causes changes in oral tissues and accelerates the destruction of periodontal tissues that support teeth, according to a new study.

Researchers at São Paulo State University (UNESP) and the University of São Paulo (USP) have demonstrated that PM2.5 exacerbates inflammation in periodontal tissues and intensifies alveolar bone loss.

"It's already well documented that pollution affects various organs," said Luis Carlos Spolidorio, a professor at the UNESP School of Dentistry in Araraquara and coordinator of the study published in the journal *Air Quality, Atmosphere & Health*.

"Since the oral cavity is constantly exposed to the external environment, we suspected that it might also be affected by pollution. What we didn't expect to observe were such significant changes in oral tissues.

"We've demonstrated in a controlled experimental setting that the oral mucosa undergoes changes when exposed to fine particulate matter."

Annual Scientific Meeting: diversity in dentistry

The Annual Scientific Meeting of the Faculty of Dentistry, Royal College of Surgeons in Ireland (RCSI), will explore the unique journeys, careers and experiences that shape dentists' lives both within and beyond the profession.

Delegates will gain fresh perspectives, practical insights and inspiration from colleagues whose diverse experiences are helping to shape the future of dentistry. "Join us for an engaging two-day programme featuring distinguished local and international speakers, offering valuable insights and networking opportunities," said Dr Kate Farrell, Dean of the Faculty of Dentistry.

A highlight of the conference on Friday 2 and Saturday 3 October, in RCSI's Desmond Auditorium at No. 26 York Street, will be the prestigious Edward Leo Sheridan Lecture, which this year will be delivered by Professor Duncan Sleeman. There will also be a pre-conference hands-on course in Paediatric Dentistry for General Practitioners on Thursday 1 October.

Further details are available here: facultyofdentistry.ie/cpd-courses/upcoming-events/asm-2026

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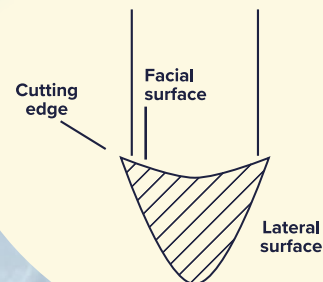
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MRI may replace dental X-rays

A new type of dental imaging could improve how dentists care for patients

MAGNETIC resonance imaging (MRI) could one day replace dental X-rays, according to researchers.

While X-rays and CT scans help dentists see teeth and bone, they provide limited detail of soft tissues, inflammation and early disease. Recent advances in MRI technology and dental-specific equipment are opening new possibilities.

Researchers are exploring the potential use of dental-dedicated MRI (ddMRI) which, unlike traditional imaging, does not use radiation and can show detailed images of teeth, bone, gums, muscles, joints and inflammation in one scan.

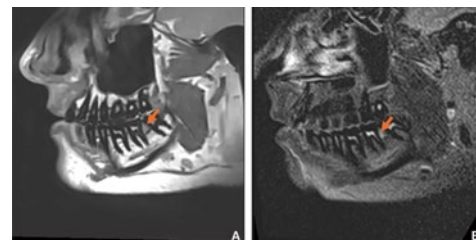
Studies¹ suggest that ddMRI can detect active inflammation, tell the difference between healing and disease and improve understanding of gum and implant health. In addition, it could support complex treatment planning and provide safer

imaging for children and patients needing repeated scans

The extra detail could help dentists answer key questions, such as whether an infection is still active, if the jaw is under stress, and whether tissues are healthy enough for implants or treatment. It may be especially useful for complex cases, including patients with medical conditions, past trauma, or extensive dental work.

Dr Saoirse O'Toole, a clinical lecturer in prosthodontics at King's College London's Faculty of Dentistry, Oral & Clinical Sciences, said: "Dental-dedicated MRI is designed to complement rather than replace X-rays or CT scans, helping dentists make more personalised and confident decisions.

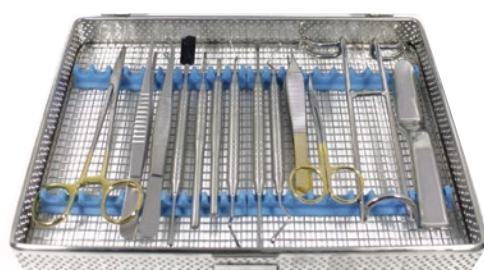
"It allows us to see not just structure, but activity including whether tissues are inflamed, healing, or under stress.



A ddMRI revealing bone loss (A) and periodontal inflammation (B)

"Although ddMRI is not yet routine, it does show strong promise. Some challenges remain, including cost, access, and training but this new approach could help dentists see more while exposing patients to less."

'[www.thejpd.org/article/S0022-3913\(26\)00379-3/fulltext](http://www.thejpd.org/article/S0022-3913(26)00379-3/fulltext)



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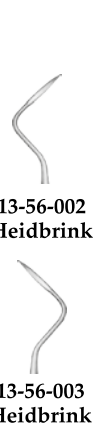
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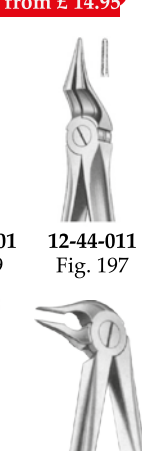
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Fig. 146



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Fig. 197

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Mini robot could simplify dental treatment

As a next step, the researchers plan to integrate sensors and a camera

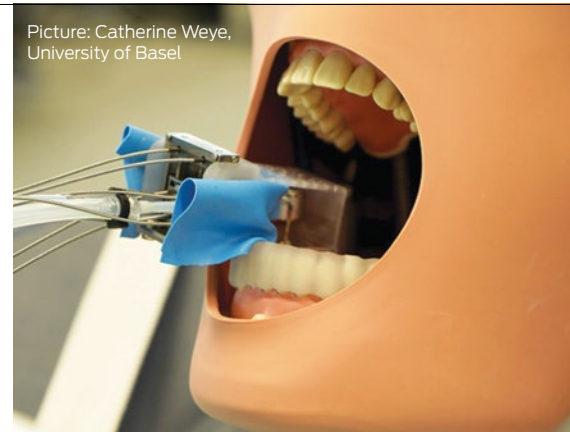
A **MINIATURE** dental robot that could one day automatically prepare teeth for crowns, and reduce the number of appointments needed for treatment, has been developed by researchers at the University of Basel.

The prototype is about the size of a wine cork. Its motors and control system are located outside the robot and connected to it via flexible drive shafts, cables and tubes. "It is designed to be small enough to fit comfortably into an open mouth," says Dr Yukiko Tomooka, first author of a paper¹ in *IEEE Transactions on Medical Robotics and Bionics*.

The prototype, called MIR, short for Miniature Intraoral Robot, is designed to prepare teeth precisely, according to a digital plan. After a scan during the first appointment, dentists could plan exactly how the robot should remove the tooth material and order the crown straight away, rather than waiting for a second appointment. The scan is used not only to plan the crown, but also to produce a custom-fitted dental splint to which the robot is attached.

The researchers tested the robot on tooth models made of synthetic resin and on a ceramic material with a hardness like

Picture: Catherine Weye,
University of Basel



that of tooth enamel. The robot prepares the tooth in two steps; first, it uses a wide drill to reduce the tooth surface, removing material from above. In the second step, a longer, thinner drill works on the sides of the tooth. In tests, the positional error was less than 0.2 millimetres, which could be further reduced after sensors are integrated into the system.

Going forward, the researchers plan to integrate sensors and a camera into the robot so that the system can monitor its position and the progress of the treatment.

¹ieeexplore.ieee.org/document/11478483

Researchers develop nature-inspired toothpaste

It includes a material originally developed for bone grafting

A **NEW** toothpaste for relieving tooth sensitivity has been developed by UCL researchers using a nature-inspired material that supports bone regeneration.

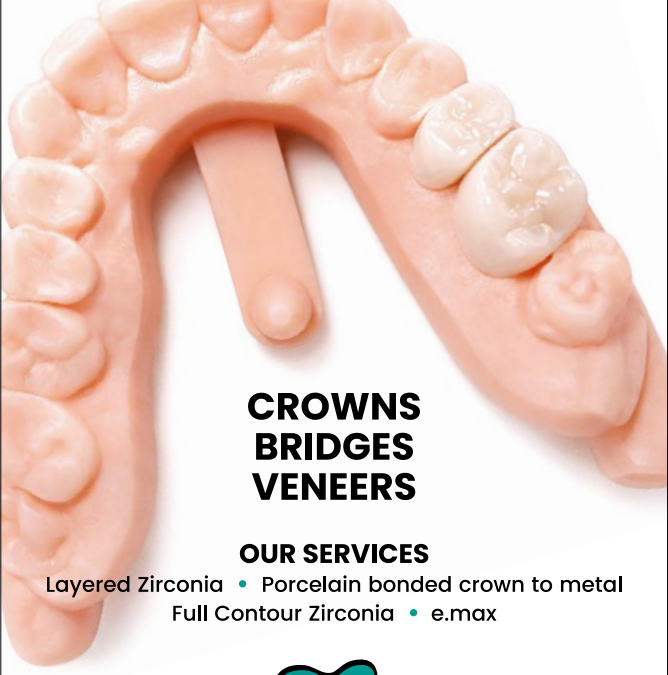
The technology, developed by scientists at the UCL Centre for Nature-Inspired Engineering (CNIE), includes a material originally developed for bone grafting, called AeroGraft, with a novel structure that can rapidly rebuild tooth surfaces with material indistinguishable from bone.

Unlike most sensitive toothpastes, which work by either numbing the nerve or slowly blocking tiny channels inside the tooth over days or weeks, AeroGraft quickly seals exposed tubules while releasing calcium and phosphate ions to form a protective mineral layer on the tooth surface.

Tooth sensitivity occurs in around half the UK population. It can lead to significant pain and cause people to avoid certain foods, impacting quality of life. The new technology has been licensed for development into a new range of toothpaste and oral gel called OZEN.

Professor Marc-Olivier Coppens, who leads the development team, said: "This work grew out of fundamental research into hierarchically structured catalysts as well as nature-inspired materials and how they support mineral regeneration in the body.

"What has been particularly exciting is seeing the science translated from lab research into a consumer product that can unlock real world benefits for people."

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WHO ORAL HEALTH POLICY LAUNCHED IN DUBLIN

It encourages countries to design health services around the needs of people living with a disability

Dublin Dental University Hospital hosted a reception in August at which the World Health Organization (WHO) launched its new policy, *Oral health equity for persons with disabilities*. The event was attended by Professor Alison Dougall, the Dean of Dublin Dental University Hospital and Head of the School of Dental Science, Professor Paul Brady, the Dean of University College Cork Dental School and Hospital, and key stakeholders from the Health Service Executive, the Department of Health – Ireland and the Department of Education and Youth.

More than 1.3 billion people worldwide live with a disability. According to Ireland's National Disability Authority, 70% of working-age adults with a disability acquired it during their adult life, between the ages of 16 and 65, with 30% affected from birth or childhood.

Currently, in Ireland and abroad, disability means that people must wait longer for oral health services, often only receiving care when preventable problems have developed into emergencies or tooth loss.

People may require an accessible building or specialist equipment, longer appointments, adapted communication, or close cooperation between dentists, carers and other healthcare professionals.

Frequently, general dental practices lack the appropriate training, confidence and resources. Having poor oral health also leads to poorer outcomes in overall health.

Professor Dougall said: "Dental issues represent the most common non-communicable disease in the world, and they are expensive to put right once things go wrong."

"The frustrating part is that the science around prevention has moved beyond all recognition in recent years, like other areas in medicine, but the access and support for people with disabilities remains in the dark ages."

The new WHO policy aims to address these critical shortcomings. It states: "By implementing Global Oral Health Action Plan (GOHAP) actions in a disability-inclusive manner – particularly through equitable



Dr Kaloyan Kamenov and Professor Alison Dougall at the launch of the WHO's new policy

service delivery, meaningful engagement of persons with disabilities for health policy and programme development and strengthened oral health information systems – progress can be made towards ensuring the needs of persons with disabilities are recognised and met.

"Achieving the GOHAP's vision of universal health coverage for oral health by 2030 requires commitment to inclusion, equity, and evidence-based action. Persons with disabilities must be engaged not only as beneficiaries but as active contributors to shaping oral health policies and programs that reflect their rights and needs."

Speaking at the launch, Dr Kaloyan Kamenov, Disability Lead at the WHO, highlighted how inclusion and equity must be designed into oral health systems and people with disabilities should be active partners, rather than simply recipients of care.

Among the external contributors who helped to draft the policy brief were Finbarr Allen, of University College Cork, and Katrina Byrne and Caoimhin Mac Giolla Phadraig, of Trinity College Dublin.

DIGITAL DENTISTRY

PART ONE

Learning dental clinical skills with touch technologies and simulations

WORDS
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J COX

What do we mean by digital dentistry?

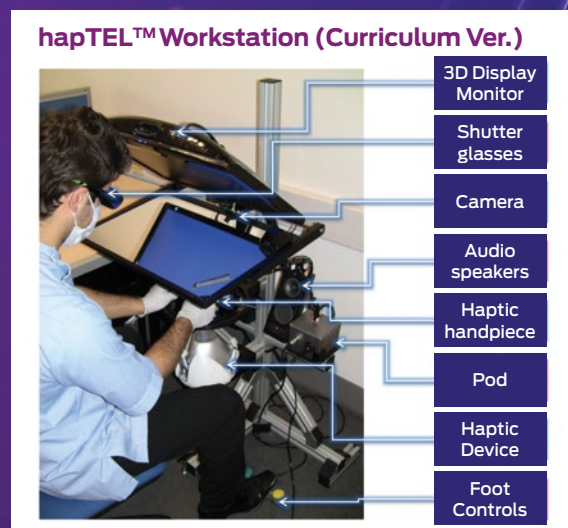
The rapidly growing number of new technologies being produced in the health sciences and those already embedded into higher education courses are providing new opportunities for dental educators, clinicians, trainers and practitioners.

Collectively, the use of these technologies in dentistry is frequently called 'digital dentistry' which includes virtual simulators using haptic (sense of touch) interfaces such as the one shown below (Figure 1). Here, we see a Year 1 BDS dental student using the award-winning hapTEL system, designed in 2007-9, where the learner is holding a dental drill in his hand and operating the 'drilling' procedure using a dental foot pedal^{1,2}. He can 'feel' the resistance of the tooth through a haptic device while trying to create a cavity in a tooth with decayed tissue. The simulator has a second screen on the side (not shown) on which the student can select the type of cavity, instrument, speed of drill and magnification of the image and keep a record of the operations.

Alongside virtual haptic simulators, other digital resources found in dental schools and training centres include computer-based devices such as 3D scanners and printers, CAD-CAM milling equipment, radiography and computer implant dentistry. As these become part of the dentist's resources for treating patients, so their uptake in dental education is also increasing.

Ten years of extensive research, using the hapTEL system with more than 1,200 students at King's College London, showed that it can provide equally effective

Figure 1: HapTEL simulator being used by BDS Year 1 students



training as the traditional system, with the additional advantages of costing less and providing immediate documented individualised feedback to every student¹.

Another well-known haptic simulator is the Simodont system (shown in Figure 2), which was developed by the ACTA team in the University of Amsterdam during the same period.

Although the design of these two systems is different, the educational purposes are similar; each was developed to enable learners to perform common dental procedures, such as the removal of caries from a single tooth or a tooth embedded in a jaw.

All recent systems include many other dental procedures relevant to orthodontics, prosthodontics, oral and maxillofacial surgery etc. These simulators also include, for novices, non-dental specific tasks, such as drilling into a '3D block'. Even with the now more realistic up-to-date virtual dental workstations such as SIMtoCARE (shown in Figure 3), the basic operation of



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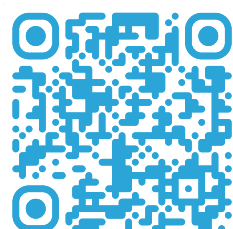
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Figure 3 (above):
The SIMtoCARE
dental simulator

the learner is to hold a device in one hand, and sometimes the mirror in the other, and apply force and precision to conduct a procedure which can be controlled by the use of the foot pedal and the hand manipulation of the user.

The SIMtoCARE simulator shown here has two screens, one of which is a control panel at which the learner can select what kind of tooth/jaw etc., he or she might choose to operate on, with many different instruments, speeds, and magnification. These have now been installed in more than 30 dental schools worldwide with many having suites of eight or more being used for the undergraduate and postgraduate programmes.

With modifications, these systems can now also be used for dental hygienists, medical and nurse education on a wide variety of procedures from suturing to injections. Further technological developments provide the opportunity to broaden these application to other fields and contexts, such as patient rehabilitation after strokes, improving motor skills with feedback and monitoring progression in performance and understanding.

Challenges in learning dental skills for the novice student

The first practical difficulty dental students encounter is learning to hold the instruments correctly and ergonomically positioning the patient. Novices often use too much pressure for too long, with the concomitant removal of too much dental tissue. Using haptic simulators allows them to go through this process repeatedly without destroying plastic or natural extracted teeth, which are in short supply. The students can learn clinical skills to prepare carious virtual teeth and later to transfer these skills into the real clinical environment. The student and tutor can play back a video to examine the technique and to see how much decayed versus healthy tooth they had removed. As one student said: "When you first come into dentistry everything is very alien to you; the way you position your hand, the tiny movements that you need to perform procedures. These are difficult to achieve. The hapTEL system allows you to repeat a task over and over again; it gets ingrained into your muscle memory and improves your manual dexterity."

Assessing what students are learning

A major part of any teaching and learning programme or professional development course is how to assess the learning outcomes and the acquisition of skills. Previous world-renowned research by Black and Wiliam³ shows that the most effective basis for improving learning through assessment is by formative assessment, whereby the learner is challenged to express their ideas and understanding and discuss those with the teacher, and by getting feedback during the learning activity.



FOR EACH STAGE IN THE STUDENTS' OPERATION, THEY CAN SEE HOW WELL THEY HAVE DONE AND WHERE THEY CAN IMPROVE WITHIN MINUTES OF THE ACTIVITY"

In healthcare education, a large proportion of the assessment is conducted through either observation of practice, such as in clinics or in the phantom head lab, or through assessing assigned clinical competence tasks in a simulated clinical environment against a set of criteria, such as the Objective Structured Clinical Examinations (OSCEs). With the former approach, the students are given feedback but usually on their level of performance with limited detail, whereas in the latter assessments, these are summative and take place after months of teaching and learning. The advantage of using virtual dental simulators instead of the traditional phantom head is the ongoing and immediate formative feedback provided to the learner. For each stage in the students' operation, they can see how well they have done and where they can improve within minutes of the activity. Furthermore, they learn how to evaluate their own learning which provides a foundation for learning strategies which makes them better learners for the rest of their lives.

An extensive review conducted in 2021 by 39 European dental educators/researchers investigating the abundance of simulation technologies available to support the delivery of dental education concluded that "there is a need to empirically scrutinise today's digital simulators in the context of dental training and education, to identify their potential utility as pedagogical tools and to inform their future design improvement"^{4, p20}. Guidelines commissioned for Health Education England in 2023, disseminated to all dental education and training establishments, provide further extensive research evidence of how digital dentistry has enhanced teaching and learning across the field in different education and training settings¹.

Today's challenges

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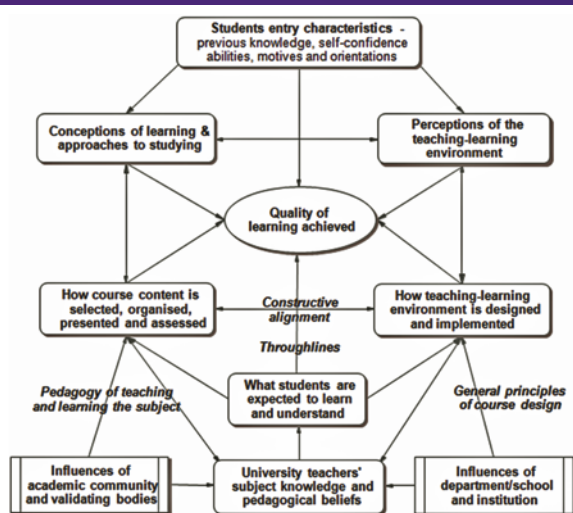


Figure 4 (above): Conceptual framework showing influences on student learning (Entwistle & Peterson⁶)

teaching and learning across the field in different education and training settings¹.

Today's challenges

This expansion in digital dentistry use is not only due to innovative educators adopting them but also because of the increasing influence of students themselves.

Despite many universities still focusing mainly on traditional teaching, the increasing number of students entering higher education and the explosion of IT technologies in society and industry has led to universities needing to develop new ways of teaching, and thereby new ways for students' learning. This has led to growing expectations that traditional learning and teaching systems will need to adapt and change in universities to keep up with students' expectations and benefit from the opportunities which technology-enhanced learning (TEL) can offer to teaching and learning. An analysis of the impact of TEL on higher education establishments by Diana Laurillard⁵, over more than three decades, shows that teachers in higher education have had to become more professional in their approach to teaching, matching their professionalism in research to their strategies for teaching, and the advantages of computer technology has resulted in a pedagogical shift in higher education.

The reality: how widely used are haptic simulators in dentistry?

Despite all the positive evidence available to date and the relentless march of digital dentistry, including simulators, over the past 50 years, many have remained infrequently used and are still not prominent in the dental curricula. At dental conferences, how many posters do we see showing integrated uses of haptic simulators in the undergraduate curriculum? At the American Dental Education conference (ADEA2026) in Montréal, in March, very few such posters were about digital dentistry and even fewer exhibits showed the latest versions of haptic simulators.

The explanations for the slower than expected uptake and limited use can be provided by many studies in other areas of higher education research, particularly through the extensive work of Noel Entwistle (edwebprofiles.ed.ac.uk/profile/noel-entwistle), who spent years investigating the factors which influence students' learning in higher education.

As an outcome from his investigations, he produced a model (Figure 4) which shows all the factors which can directly or indirectly affect the quality of students' learning. This has been used by many researchers since to help us understand that innovations in teaching and learning have many influencing factors on the path to full

integration^{1,6}. If we look at this framework, we can see that even if the teaching and learning environment, i.e. virtual haptic simulators and other digital dentistry devices, has been shown to be beneficial to students' learning, the quality of the learning achieved will also depend upon how the course content is selected, organised, presented and assessed.

All too often, dental schools do not have enough devices for all students to have equal access or to use them frequently enough to benefit their learning. In such situations, the uses become unsupervised optional extras and, thereby, seen as less important than all the other learning activities the students are required to follow.

Furthermore, how the teaching and learning environment is designed and implemented will depend upon the influences of the dental school/department and so on. So, the reasons that virtual dental simulators might not yet be used regularly, or even at all, in some dental schools include:

- The use of these simulators must be included in the planning of the whole teaching, learning and assessment programme from the start.
- Those who decide and plan a dental course or training programme need to understand how these devices can complement other teaching resources and which skills and concepts will be learnt.
- Those dental teachers assigned to using these devices need to know how they can be used to best educate the learners and how to organise the learners and the teaching and learning sessions accordingly.
- Equal importance needs to be given to the uses of the virtual haptic simulators as to all the other practical clinical sessions.
- Finally, assessing what the students are learning and providing feedback should be given the same weight and importance as any other learning activity on the programme.

These are just a few of the requirements known to be important to the successful uptake and integration of digital dentistry for education and training. If we are to harness these powerful teaching and learning devices to enhance the skills of our future dentists, then these strategies need to take centre stage in every dental school and training centre.

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DIGITAL DENTISTRY

PART TWO



From optional innovation to essential competence

Digital technologies such as intraoral scanning, CAD/CAM, 3D printing, CBCT and AI-supported systems are already reshaping clinical dental practice, yet their integration into dental education remains inconsistent. This creates a gap between what students

learn and the workflows they will encounter after graduation. This article argues that digital competence should be treated as a foundational professional skill rather than an optional enhancement.

Effective preparation requires graduates who are fluent in both analogue and digital approaches, able to select appropriate methods, and capable of critically evaluating digital outputs. Key risks include cost, faculty readiness, curriculum pressure, equity of access, and the potential for deskilling if tools are used uncritically.

WORDS
**REINHARD
CHAU AND
SZABOLCS
FELSZEZGHY**

A measured, outcomes-focused approach that prioritises faculty development, progressive integration across disciplines, and hybrid teaching is proposed. The aim is not technological enthusiasm or resistance, but the development of clinicians who can use digital systems wisely and with clinical judgement intact.

Digital technologies are already reshaping clinical dentistry. Intraoral scanning, CAD/CAM, 3D printing, CBCT, guided surgery, teledentistry and AI-supported systems form part of everyday workflows in many practices. Yet their integration into dental education remains uneven. This gap between clinical reality and educational preparation deserves careful attention.

The goal is not to replace traditional skills with technology, but to develop graduates who are fluent in both analogue and digital approaches. Clinicians need the ability to move between workflows, choose the most appropriate method for each clinical situation, and recognise sources of error in complex digital systems.

Technical proficiency alone is insufficient. Discernment, adaptability and ethical responsibility matter equally. Graduates must be able to evaluate



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new tools critically, understand their limitations, and consider their implications for patients and the wider system of care. In this light, digital competence is no longer an optional enhancement. It is becoming a foundational element of professional readiness.

The potential contribution of digital tools

Digital tools can make processes that were once largely intuitive more visible and teachable. AI-supported visualisation, virtual design, and simulation allow anatomy, restorative planning, and procedural steps to be examined, compared, and discussed with greater clarity. Immediate feedback becomes possible, assessment can be more objective and communication between student, teacher and patient can improve through shared visual references.

These capabilities are particularly useful in simulation, formative assessment and shared decision-making. Students can identify preparation errors more clearly, compare their work against defined standards, and explain treatment options with visual mock-ups that patients can understand. When used thoughtfully, digital technology does not simply accelerate learning, as it can support more deliberate practice and greater confidence.

It also opens possibilities for more resource-conscious education, such as reducing material waste, limiting the need for repeated physical models and supporting more efficient use of limited clinical resources.



DIGITAL TOOLS CAN MAKE PROCESSES THAT WERE ONCE LARGELY INTUITIVE MORE VISIBLE AND TEACHABLE

Risks that require attention

Progress brings genuine challenges. Cost, ongoing maintenance, rapid software change and variable faculty readiness are not minor details, as they often influence whether new approaches succeed or stall. Crowded curricula, questions of equity and access, increasing reliance on automated outputs, and unresolved issues around data privacy and AI governance add further complexity.

A more subtle risk is the gradual loss of depth. When learners accept software suggestions without understanding the underlying processes, or trust outputs without interrogating their validity, clinical judgement can erode. Dentistry rests on biological understanding, mechanical principles and experienced decision-making. These cannot be outsourced.

Hybrid education is therefore not a compromise but a necessity. Students and educators need to work with digital systems while retaining the capacity to question them, interpret them and, when required, override them. The future will be shaped less by the

technologies themselves than by the professionals who use them with judgement.

A measured approach for schools

Meaningful change does not begin with the purchase of equipment. It begins with clear intention. A realistic sequence starts with faculty development and shared understanding of purpose, followed by the building of digital literacy and simulation capacity. Only then does it make sense to move into preclinical application, supervised clinical integration, and ongoing quality improvement. At the centre of any such effort should sit a simple principle: outcomes before instruments. The primary question is not which devices to acquire, but which competencies graduates need. Curricula, teaching methods and assessment can then be aligned with those goals.

Faculty development cannot be deferred. Infrastructure is most effective when planned strategically and shared rather than fragmented. Assessment should track growth over time rather than isolated performance. Quality improvement works best when it is continuous and embedded rather than occasional. Recent educator surveys examining barriers to digital adoption, together with feedback on emerging training tools such as multi-layered drilling plates, underline the importance of these practical considerations. They also highlight the value of proceeding in measured stages rather than through abrupt technological leaps. Sustainability offers an additional reason for careful implementation. Thoughtfully designed digital workflows can reduce material consumption, decrease the need for repeated procedures and support more efficient use of resources, therefore contributing to a more environmentally responsible model of education and care.

Integration across the curriculum

Digital dentistry cannot remain confined to a single course or speciality. Restorative dentistry, orthodontics, radiology, implantology, periodontics, endodontics, paediatric dentistry and teledentistry each engage with digital technologies in distinct ways, with different applications, challenges and competency requirements. Effective preparation therefore requires a longitudinal approach: competencies developed progressively, reinforced across stages of training and assessed in varied clinical contexts. This supports not only technical skill but also critical judgement and discipline-specific expertise.

The deeper question for dental education is whether schools can prepare graduates who are both technologically fluent and clinically sceptical. Producing students who can operate digital devices but cannot judge when to trust them falls short of the educational task. The most useful curriculum will neither celebrate digital tools uncritically nor reject them out of caution. It will equip educators and students to use them wisely and ethically, with clinical judgement intact.

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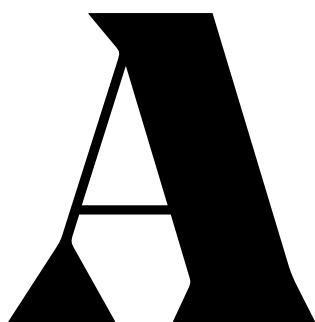
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An in vitro study of the fixed edentulous implant guide using a novel approach

Adam B. Nulty, University of Leeds



Accurate implant placement in fully edentulous patients (those with complete loss of all natural teeth) remains a clinical challenge¹. Mucosa-supported surgical guides are widely used in guided surgery for these cases but are prone to displacement and distortion, leading to significant deviations in implant position². This is especially problematic in flapless protocols where visibility and tactile feedback are limited³.

The Fixed Edentulous Implant Guide (FEIG) system investigated in this study introduces a screw-retained method of stabilising the surgical guide via a two-part orthodontic fixation screw, intended to improve guide stability and implant placement accuracy. This innovative approach aims to enhance the precision of implant placement by addressing the common issues associated with mucosa-supported guides, such as displacement and distortion⁴.

Implant surgery in edentulous patients must often balance the desire for minimal invasiveness with the need for precision⁵. Traditional approaches such as flap raising increase morbidity and may delay healing⁶. Conversely, mucosa-supported guides used in flapless surgery can result in angular and linear deviations, particularly in the absence of hard-tissue reference points. The FEIG approach aims to bridge this gap by rigidly referencing both hard and soft tissues during guide placement.

In addition to enhancing stability, the FEIG system's reliance on a screw-retained mechanism may also facilitate more accurate intra-operative adjustments, allowing for real-time corrections during the surgical procedure. This adaptability is particularly crucial in edentulous cases where anatomical variations can lead to unexpected challenges. Furthermore, emerging technologies such as real-time imaging and soft tissue navigation systems can complement the FEIG approach, providing surgeons with more comprehensive feedback on implant positioning and soft tissue interactions⁷.

By integrating these advanced imaging techniques, the potential for achieving optimal implant placement accuracy may be significantly improved, thereby reducing the risk of postoperative complications and enhancing patient outcomes in guided surgeries. This study highlights the importance of utilising innovative techniques, such as the FEIG system, to improve the accuracy and outcomes of flapless implant surgeries in edentulous patients.

Background

Approximately 6% of the population in England, Wales and Northern Ireland is edentulous^{8,9}. Globally, complete edentulism affects over 150 million people, representing a significant functional and psychosocial burden^{10,11,12,13}. Edentulism leads to reduced mastication, altered speech and changes in facial appearance and support¹⁴.

Conventional treatment options have historically included removable complete dentures, but fixed implant-supported prostheses offer superior function and patient satisfaction¹⁵. The McGill Consensus (2002) recommends mandibular two-implant overdentures as the minimum standard of care^{16,17}.

Despite the functional benefits of implants, complications may arise

from misplacement due to inadequate guide stability or surgical visibility¹⁸,¹⁹. Angular deviations, coronal displacement and apical divergence can all compromise outcomes²⁰. These errors are influenced by the guide design, fixation method and whether the surgery is performed with or without a flap²¹. The use of large flaps, while improving visibility, increases the risk of soft tissue trauma, delayed healing, infection and morbidity^{22,23}.

Alternative solutions are necessary for elderly or medically compromised patients who may not tolerate invasive surgery. Studies have shown that implant-retained over-dentures improve oral health-related quality of life. At the same time, there is recognition that many patients, especially the elderly, may be reluctant to undergo extensive procedures²⁴. In such cases, minimally invasive, flapless guided surgery using stable reference guides could improve both clinical outcomes and patient acceptance.

As the demand for less invasive options grows, the integration of digital technologies in implant surgery continues to gain traction, offering a promising avenue for enhancing surgical precision²⁵. Computer-guided surgery, utilising advanced imaging techniques such as cone-beam computed tomography (CBCT), allows for meticulous preoperative planning and real-time feedback during procedures²⁶. This approach not only minimises the risk of complications associated with traditional methods but also aligns with the increasing preference among patients for procedures that prioritise comfort and reduced recovery times²⁷.

Furthermore, studies have reported that flapless computer-guided techniques can achieve high implant survival rates while maintaining minimal soft tissue trauma²⁸, thus supporting the notion that innovative methodologies like the FEIG system could further optimise patient





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outcomes in this evolving field of dental surgery²⁹. By fostering a collaborative environment that combines technological advancements with novel surgical techniques, practitioners can better address the complexities of edentulous cases and improve overall patient satisfaction^{30,31}.

Aims

The aim of this study was to measure the accuracy of implant placement using the FEIG method in comparison to a conventional mucosa-supported surgical guide in an in vitro edentulous mandible model. The FEIG system uses two-part orthodontic fixation screws to create a stable reference between CBCT imaging and intraoral scanning.

Implant planning was carried out using SMOP guided surgery software. Rather than comparing pre- and post-operative CBCTs, implant positions were exported as 3D STL models and the final implant positions were recorded using scan bodies. The planned and actual implant STL positions were aligned and compared using a custom algorithm developed by the Leeds School of Dentistry to calculate trueness and precision^{32,33}.

Anatomical model fabrication

To simulate clinical conditions, a more biologically representative lower jaw model was created. Artificial D2-density mandibles (Model #1522-42, Sawbones, Vashon Island, WA, USA) were used as the bone base. The mandibular model surface was optically scanned (Up3D 300e, Up3D Dental, Seoul, Korea) and a soft tissue layer was designed by extruding the surface geometry by 1.5mm; the average mucosal thickness in edentulous mandibles. This gingival layer was 3D printed using Asiga Dental Gum resin (Asiga, Australia) and bonded to the mandible using adhesive spray (Figures 1 and 2)³⁴.

The model design simulated an extensively resorbed edentulous ridge, classified as Atwood Class V, characterised by a smooth, flattened residual ridge³⁵. While the model does not fully replicate the clinical variability of patient-specific bone and mucosa, it provides a consistent standard for comparative accuracy measurements.

Five models were prepared with the FEIG system, and five with a conventional mucosa-supported guide. The FEIG models incorporated



Figure 1: 3D Printed Gingiva to attach to the Artificial Mandibles

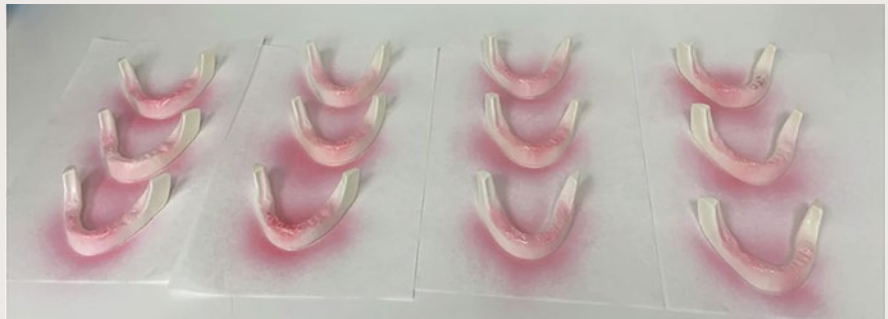


Figure 2: Artificial Mandibles are sprayed with adhesive to bond the artificial gum layer



Figure 3: Artificial Bone Model Type A - With Novel Two Part Screws and Type B - Without screws

a set of three stainless steel two-part fixation screws (length: 10mm, diameter; 1.6mm; custom-manufactured) arranged in a triangular configuration. These screws anchored into the bone and acted as fixed reference markers in both CBCT imaging and intraoral scanning (Figure 3). The two-part screw featured a coronal component that interfaced with the guide during seating, ensuring repeatable positioning.

Each model was labelled and scanned with a laboratory scanner (Up3D 300e) to generate a high-resolution STL file for planning and analysis (Figures 4 and 5).

Virtual planning and CBCT acquisition

CBCT scans were acquired using

a Carestream CS 8100 3D system (Carestream Dental, Atlanta, USA) with a voxel size of 0.2mm, standard protocol for edentulous lower arch imaging. The STL file from the lab scan and the DICOM data were imported into SMOP guided surgery software (Swissmeda, Zurich, Switzerland; version 2.11), where four dummy implants (4mm diameter x 10mm length) were virtually planned for each model (Figure 6).

Guide fabrication

Surgical guides were designed using SMOP and exported as STL files. Guides were printed using an Asiga Max UV 3D printer (Asiga, Australia) with a 25µm layer thickness using NextDent SG Guide resin (NextDent, The



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1. Using NiteWhite 16% CP once a day for 14 days.

2. n=46, USA, 2024. participants using DayWhite 6% HP once daily for 14 days.



Figure 4: Each Model was scanned with an Up3D 300e lab light scanner

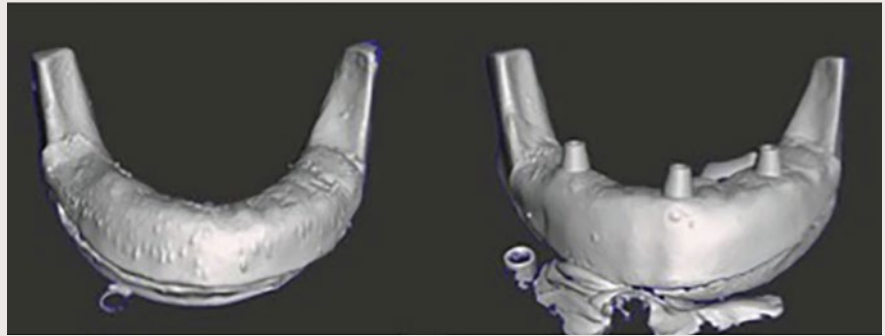


Figure 5: The 3D STL scan of each model type

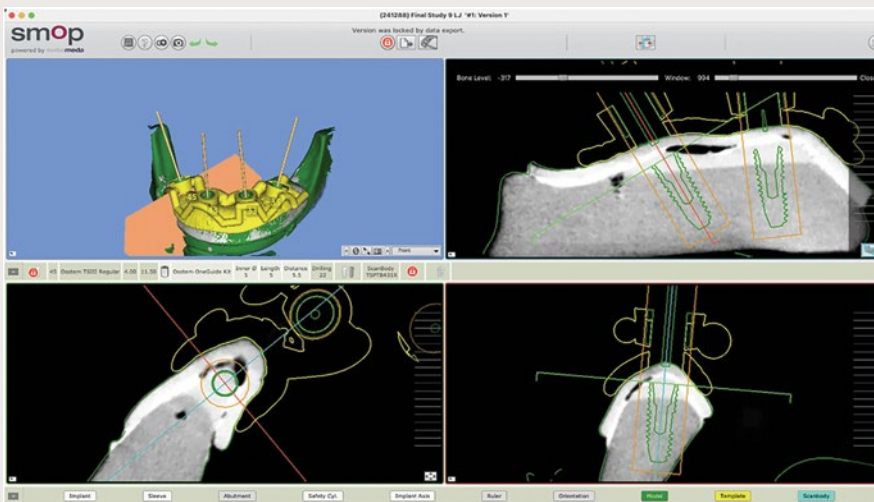


Figure 6: The Swissmeda SMOP Implant Planning



CBCT SCANS WERE ACQUIRED USING A CARESTREAM CS 8100 3D SYSTEM WITH A VOXEL SIZE OF 0.2MM, STANDARD PROTOCOL FOR EDENTULOUS LOWER ARCH IMAGING"



Netherlands). Each guide was post-processed according to manufacturer instructions: ultrasonic washing in isopropyl alcohol, followed by curing under UV light. The FEIG guides included fixation ports to lock onto the pre-placed screw heads, while the conventional guides were designed as soft-tissue-supported templates with no additional retention features.

Implant placement protocol

Forty dummy implants were placed in ten mandible models (four per model), using the Osstem OneGuide Sleeveless Drill Kit (Osstem, Seoul, South Korea). Gingival tissue was removed at the osteotomy sites using a standard tissue punch.

A fully guided, sequential drilling protocol was followed: pilot drills were used first, followed by successive diameter-specific twist drills as per the Osstem OneGuide protocol (e.g. 2mm, 2.8mm, 3.5mm, final 4.0mm), all through the guide

sleeves. Drills were operated at 1500rpm with saline irrigation. Dummy implants were seated using guide mounts to ensure coaxial insertion (Figs. 7, 8, 9).

Conventional guides (non-FEIG) were fabricated using the same protocol but seated directly on the gingival surface without bone-level fixation.

Accuracy analysis and implant position calculation

After implant placement, the models were scanned using the same Up3D 300e lab scanner. Scan bodies were attached to each implant to facilitate alignment and position tracking. Planned implant STL files and post-placement STL files were aligned using Exocad DentalCAD software (Exocad GmbH, Darmstadt, Germany) and exported for analysis.

Each implant was labelled by model number and position (A–D) and categorised as pre-planned or post-placement. A custom in-house C++ programme was used to

compute positional changes between corresponding STL meshes.

Each specific implant STL was then exported with a nomenclature based on the model number and position from A to D along with whether it was a pre-planned position or a post-placed position (www.nature.com/articles/s41405-025-00361-5/tables/1). This process resulted in a folder with identical implant STLs apart from the 3D XYZ coordinates of each STL.

Through this method the following changes in 3D position were calculated:

- Deviation of the centre of the coronal aspect of the implant in terms of X, Y and Z
- Deviation of the centre of the apical aspect of the implant in terms of X, Y and Z
- Vertical angulation change.

The X, Y, Z values are the absolute positions recorded. Deviation A and Deviation B are calculated as $\sqrt{X^2 + Y^2 + Z^2}$ and are the key linear deviation magnitudes used for statistical analysis of the results.

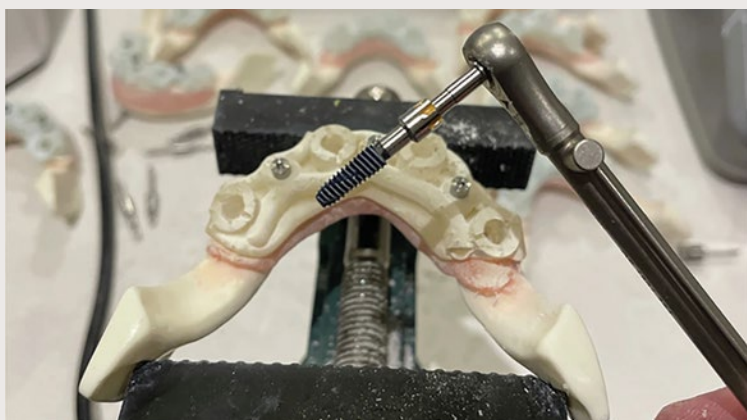


Figure 7: The test block osteotomies and dummy implant placement

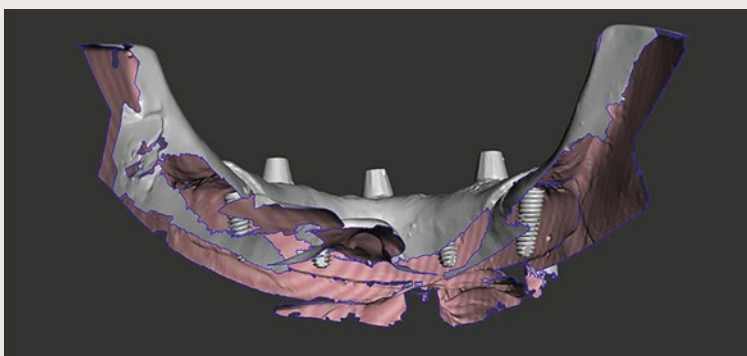


Figure 8: An STL Export of the Original Impression Data and the Export of the Planned Virtual Implant STLs

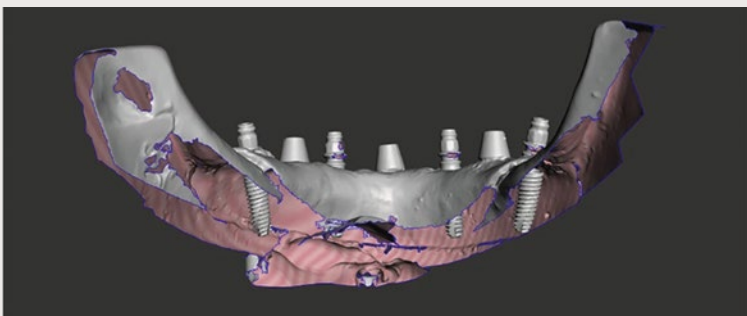


Figure 9: An STL export of the post-placement impression data. The image shows the calculated implant position below the gingiva calculated from the Scan Bodies shown above the gingiva

Once the comparison was completed the numerical analysis was added to the clipboard and recorded into a table.

Results

Statistical analysis was performed using SPSS 27 statistical analysis software³⁶. The statistics were performed in four separate groups as each model has four implants. The data from these four positions were not independent as they had the same guide sitting in the same position. The results were therefore distinguished into four data sets in positions A, B, C and D for

the comparison to the repeats of the first model data with the intention to analyse with a t-test.

Discussion

The FEIG guide yielded significantly lower linear deviations at both the coronal and apical aspects of implant placement compared to the conventional mucosa-supported guide, with mean deviations of $0.45 \pm 0.15\text{mm}$ and $0.28 \pm 0.13\text{mm}$, respectively. In contrast, the conventional guide produced mean deviations of $1.23 \pm 0.60\text{mm}$ (coronal)

and $0.90 \pm 0.40\text{mm}$ (apical). Angular deviation was also lower with the FEIG method ($1.99^\circ \pm 0.98$) compared with the control ($2.87^\circ \pm 1.95$), though this difference was not statistically significant ($p = 0.081$).

These findings are consistent with the values reported by Behneke et al., who assessed guided surgery in similar in vitro settings³⁷. More recent reviews also highlight the reduced accuracy of mucosa-borne guides due to soft tissue compression and movement during scanning and surgery. The use of bone-level screw fixation in the FEIG system appears to mitigate these factors and may account for the improved trueness observed in this study.

The implications of adopting the FEIG system extend beyond mere accuracy in implant placement; they also underscore a potential shift in clinical practice towards more patient-centred approaches in edentulous surgeries. By minimising the need for flap procedures and leveraging screw-retained stability, practitioners may not only enhance surgical outcomes but also improve patient comfort and satisfaction, which is paramount in the context of increasing patient reluctance toward invasive treatments.

Furthermore, as the field advances, the integration of artificial intelligence and machine learning into the planning and execution phases of guided surgeries could further refine the accuracy and predictability of outcomes, as highlighted by recent studies advocating for the use of advanced imaging and digital workflows in surgical settings^{38, 39}.

This evolution in technology, coupled with the FEIG's innovative design, could pave the way for a new standard of care that prioritises both clinical efficacy and the overall patient experience, ultimately leading to enhanced quality of life for those affected by edentulism.

The findings suggest that the FEIG system not only improves implant placement accuracy but may also enhance overall patient satisfaction and quality of life in edentulous individuals, aligning with recent evidence on the benefits of implant-supported prostheses⁴⁰.

Nulty, A.B. An in vitro study of the fixed edentulous implant guide using a novel approach to edentulous guided surgery using a developed two part screw.

Feature and references: BDJ Open 12, 4 (2026). www.doi.org/10.1038/s41405-025-00361-5

FORTY YEARS ON

General dental practice, 1986 and today

I QUALIFIED in Newcastle upon Tyne in 1978, and a significant part of my training was geared towards preparing patients for, and then providing, full dentures. By 1986, I was an associate in a new practice in Peterborough; 100% NHS and run with an approach that already felt old the day I walked in. Drill-and-fill, high volume, prevention an afterthought. I was desperate to do things differently, and within a few years I had. I opened my own practice 120 miles away in Abbeymead, built around a prevention-based philosophy that was, at the time, genuinely unusual on a UK high street. Looking back, that gap between the practices I trained in and the one I built is a fairly good map of how the whole profession has changed since.

From dentures to 'dreams'

That denture-heavy training was, in hindsight, a bit like preparing for the last war. I was born in 1953, the year sugar finally came off post-war rationing, and my own generation of patients did not want full dentures; they did not want any 'false teeth' at all, in fact. Dentistry had a fair bit of catching up to do to serve a population whose relationship with their own teeth had quietly changed. What we are seeing now feels like the far end of that same trajectory; a public with a growing appetite for 'health and beauty' and increasingly willing to pay for it, within reason. The upside is obvious; patients invested in keeping their own teeth rather than resigned to losing them. The risk is newer; when marketing drives desire faster than clinical skill can responsibly match it, the temptation to over-prescribe cosmetic treatment is real, and worth naming honestly rather than just celebrating the shift.

Prevention versus fee-per-item

The 1990 NHS contract was meant to nudge dentistry that way nationally; a hybrid of capitation, registration and fee-per-item designed to reward keeping patients healthy, rather than simply treating disease. It did not survive contact with the Treasury. Overspend triggered a 7% 'clawback' of fees in 1992, and the early-90s cuts that followed are widely credited with pushing a generation of dentists

WORDS
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toward private work. That is exactly the moment I remember reducing my own NHS dependence. My Abbeymead practice moved steadily toward independence through the 1990s, working hand-in-hand with a full-time hygienist at a time when that was still a fairly rare model in general practice. England and the more urbanised parts of the UK moved private/independent faster than Scotland did. Scotland has, to this day, stayed closer to a pure fee-per-item system (the Statement of Dental Remuneration), even after its own significant 2023 overhaul simplified Determination I from more than 700 items down to 45.

Prescribing: from liberal to guarded

Antibiotics were prescribed far more readily in 1986, with no dedicated national guidance and huge variation between individual dentists, and general anaesthesia was still routinely given chairside; a practice all but ended by the Poswillo Report and the tighter rules that followed. Today's prescriber works to detailed antimicrobial stewardship guidance from the College of General Dentistry and the Faculty of Dental Surgery, and NHS data shows a steady decline in dental antibiotic dispensing in England through the later 2010s. Clindamycin prescribing alone fell by more than half between 2010 and 2017. The instinct has flipped from "prescribe first" to "drain it, don't dose it". A snappier way of saying, "antibiotics are adjunct to, but never a substitute for, surgical (that's what the 'S' in BDS stands for) drainage".

Graduates, hygienists, therapists

My decision to build a practice around a full-time hygienist and expanded duty dental nurses, put me ahead of a curve that took the rest of the profession another decade or two to catch. Remember, dental therapists barely featured in general practice at all in 1986 as they were largely confined to the Community and Hospital Dental Service until scope-of-practice rules loosened from 2002. By December 2025, the picture had reversed entirely; the GDC register held 47,916 dentists (up

3.4% on the year), 11,292 hygienists (up 11%) and 8,661 therapists (up 21% in a single year). Skill-mix has gone from a novelty to the backbone of how practices plan capacity. Tellingly, more than half of the dentists joining the register in 2025 were internationally trained; a dependency on overseas graduates that would have seemed strange to my 1986 cohort, when UK dental schools supplied the workforce almost single-handedly.

Gross versus net

By the time I sold my Abbeymead practice in 2005, it bore almost no resemblance to the one I had left in Peterborough; different funding mix, different team, different philosophy. That shift in the money is worth being blunt about. In 1986, a principal's overheads consumed a markedly smaller share of gross billings than they do now. By 2023/24, average taxable income for self-employed principal and associate dentists in Scotland stood at £90,600 – essentially flat on the year before – after an expenses-to-earnings ratio that, across the UK, now typically runs close to half of gross earnings, driven by staff costs, compliance, decontamination standards and materials. A 1986 dentist kept a substantially larger share of what they billed. Today's principal is running a far more heavily regulated small business before a penny reaches their own pocket.

In summary

Prescribing more careful, prevention more central, the team much bigger and better trained, the money harder won and the patient wanting health and beauty rather than resignation; 1986 dentistry was simpler and more individually variable, for better and worse. Whether the trade-off has been worth it depends, I suspect, on whether you found your own way out of the old model – as I eventually did – or whether it found you.





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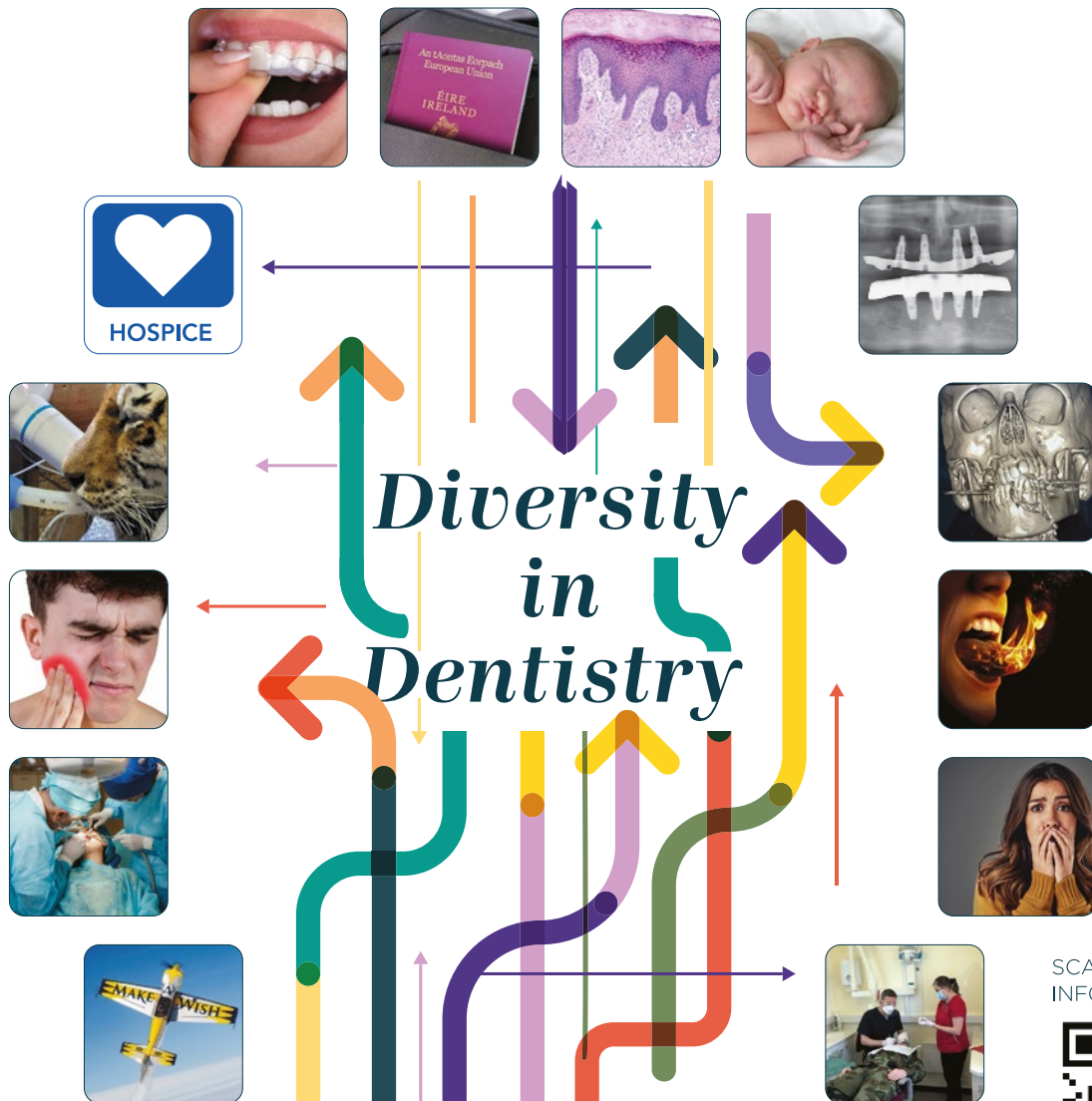




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Friday 2nd October 2026	
8.45	Dean's Welcome
8.55	Introduction
9.00	"Dentistry – A Passport to Life." – Dr Nuala Carney
9.25	"Plaque- Here today, Gone tomorrow" Dr Rory Maguire
9.50	Running a Casualty Department in Belfast Dental School – Dr Victoria Stewart
10.15	"Two patients – Two Diverse Approaches" – Dr Gabrielle O'Donoghue
10.40	Questions
10.50-11.20	Break/ Coffee and Refreshments
11.20	The Diversity of Pink and Blue Dots on a Pathology Slide – Dr Esther O'Regan
11.45	"Tongues of Fire" – Dr Daire Shanahan
12.10	Providing Dental Care for Patients with Disability Under General Anaesthesia – Dr Dani McGeown
12.35	Pathways of Pus- Problems and Solutions – Mr Colm Murphy
13.00	Questions
13.10-14.15	Lunch and Trade Show
14.15	Veterinary Dentistry – Dr Nora Schwitzer
14.40	Dental Phobia – Dr Caoimhin Mac Giolla Phadraig
15.05	The Role of Dentistry in Palliative Care – Dr Eleanor O'Sullivan
15.30	Questions
15.40	Break/ Coffee and Refreshments
16.20	The Diversity of Osseointegration, Distraction Histogenesis and Angle Correction outside of Dentistry – Ms Evelyn Murphy
16.45	Diversity of The Journey for a Patient With a Cleft Palate – Professor Gerry Kearns
17.10	Dream Big, Climb Higher – My Journey Through Sport and Dentistry to the Highest Point on Earth – Dr Sarah Armstrong
17.35	Questions
17.40	Dean's Closure

Saturday 3rd October 2026	
8.45	Dean's Welcome
8.55	Introduction
9.00	Military Dentistry Dr John Crotty
9.25	The Diversity of a Dental Idea – Dr Lisa Creaven, Dr Vanessa Creaven
9.50	Dental Aligners – Diversity in General Practice – Dr Ciaran Burke
10.15	Diversity in Endodontic Microsurgery – Dr Eoin O'Mullane
10.40	Questions
10.50-11.20	Break/ Coffee and Refreshments
11.20	Diversity of Dentistry – Academia – Professor Osama Omer
11.45	"Paediatric Dental Cases- What would you do?"– Dr Aya Al-Qaisi and Dr Leena Abdelbagi
12.10	"Paediatric Dental Cases- What would you do?" – Dr Leena Abdelbagi and Dr Aya Al-Qaisi
12.35	Questions
12.40	Edward Leo Sheridan Procession
12.45	Edward Leo Sheridan Lecture – Professor Duncan Sleeman
13.15	Presentation of Edward Leo Sheridan Medal
13.20	Lunch
14.20	Dentistry for Sick Children – Dr Yvonne McAuley
14.45	Diversity of Maxillofacial Trauma – Mr David McGoldrick
15.10	"The Sky is the Limit – Dentistry gives me Wings" – Dr Eddie Goggins
15.35	Questions
15.45	Stretch and Draw for Prizes
15.55	Running and Growing a large Dental Practice – Dr James Hamilton
16.20	Wearing Two Hats – Private Practice and HSE Consultant – Dr Joe Hennessy
16.45	"Things We Look for in a Dental Practice" – Mr Colm Davitt
17.10	Questions
17.20	Dean's Closure

HOW IS THE ASKING PRICE OF YOUR DENTAL BUSINESS CALCULATED?

In this article, Cathy Murphy (Associate Director – Dental at Christie & Co) demystifies asking prices – what they mean and how they are calculated

WHAT IS AN ASKING PRICE AND WHY DO WE HAVE THEM?

An asking price signals a guide to the level of offers that the agent and seller expect for a business. For dental businesses, this typically reflects goodwill, fixtures and fittings, and, where relevant, the freehold property. Agents use their experience and comparable sales evidence to recommend a realistic price, which allows sellers to decide whether to proceed with a sale and whether the likely outcome meets their objectives. For buyers, the asking price sets expectations and acts as a starting point for negotiation, helping them assess affordability and avoid pursuing unsuitable opportunities.

HOW IS IT CALCULATED?

Setting the right asking price is crucial, as pricing it too low risks the vendor underselling, but too high and the business may struggle to attract buyers,



often leading to later reductions. Both outcomes can be avoided through a comprehensive market appraisal by an experienced agent. Asking prices are influenced by a range of factors, including financial performance, reputation, location, lease terms, property value, demand, market conditions and regulatory gradings. Most sectors follow established valuation methodologies based on market norms.

Typically, businesses are valued using the profits method, where a multiple is applied to fair maintainable profit. Central to this is EBITDA (Earnings Before Interest, Tax, Depreciation, Amortisation), which is calculated from pre-tax profit, with adjustments made for non-recurring or personal costs that would not continue under new ownership. Once a sustainable EBITDA is established, a suitable market multiple is

applied to determine the asking price. This multiple varies depending on several factors and should be discussed with a specialist agent.

Ultimately, an asking price is not just a number, but a strategic tool designed to position a business correctly in the market. When supported by accurate financial analysis, market evidence and sector expertise, it helps generate interest, encourage competitive bidding and maximise value. Engaging with an experienced agent ensures that the price reflects both current market conditions and the true potential of the business, giving sellers the best possible chance of achieving a successful outcome.

To find out more about the sales process, or for a confidential chat about your business options, contact Cathy Murphy at cathy.murphy@christie.com or +44 7756 875 133

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