

CONNECTING DENTAL TECHNOLOGY

# Laboratory

FMC CONNECTING DENTISTRY

November/December 2024 / Volume 18 / No 5



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# A NEW FORMULA FOR AESTHETIC MONOLITHIC LONG-SPAN RESTORATIONS

By MDT Daniele Rondoni

Usually, the aesthetic potential of a dental ceramic material – specifically its translucency – may be increased only at the expense of a decreased flexural strength. The new KATANA™ Zirconia YML from Kuraray Noritake Dental Inc. is different. With its high flexural strength of 1,100 MPa in the lower half of the blank and high translucency in the upper body and incisal areas, it has a high aesthetic potential and an unlimited indication range, as shown using the following case example.



Figure 1: KATANA™ Zirconia YML 4-unit and 6-unit bridges after milling and sintering. A natural vestibular surface texture plays a decisive role in the creation of aesthetic monolithic restorations.



Figure 2: The two bridges on the model after ultra-micro layering with CERABIEN™ ZR FC Paste Stain (Kuraray Noritake Dental Inc.).

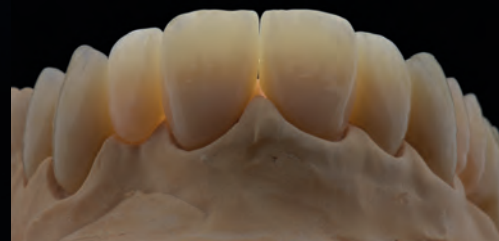


Figure 3: Stained and glazed restorations and their translucency in transmitted light.



Figure 4: Buccal view of the 6-unit bridge cemented in the patient's mouth.



Figure 5: Buccal view of the 4-unit bridge cemented in the patient's mouth.

*„This evolution of zirconia is a perfect combination of optical properties and strength.  
We can finally create highly aesthetic and long-lasting monolithic bridges with  
KATANA™ Zirconia YML, thanks to the new technology from Kuraray Noritake Dental.“*

*Daniele Rondoni, MDT, Italy*



For the full clinical case:



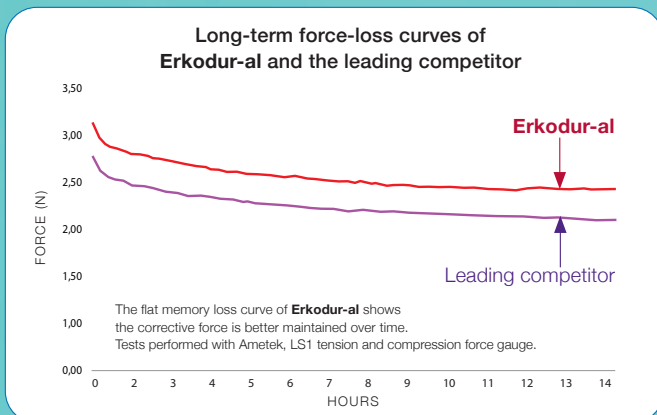
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# REALISM PERFECTED

Achieving unparalleled aesthetics with ovate pontics [p.16](#)

A dual approach to a lower denture replacement [p.12](#)

A life-changing mission in Uganda [p.30](#)

Christmas in the lab [p.40](#)

TWO HOURS' ENHANCED CPD INSIDE THIS ISSUE



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# The road ahead

**MATT EVERATT**

Editor-in-chief

**W**ell, how on Earth did that happen? We have thundered through another year, and here we are with the winter edition of *Laboratory* magazine.

We have just had the budget announced and, without getting political, it has hit small- to medium-sized businesses hard. The increase in national insurance contributions (NICs) and the reduction of the threshold of when employers start to pay NICs is making it more expensive to employ people. I cover a little more about this on page 28.

## TOUGH TIMES FOR SOME

Last month, Dental Laboratories Association (DLA) members were sent an email from president Ian Cumberland asking for feedback on how labs were fairing in regards to levels of work. Ian said his own lab had seen a decline in August and September, with a steady recovery for October.

We saw similar posts in the Dental Technicians Great Britain (DTGB) Facebook group from labs saying work had dropped significantly. There are several theories for this, including more dentists leaving the NHS or patients waiting to see

what the October budget announcement would bring.

Ian also said he had seen a decline in higher value cases in his own lab.

There are some theories that the dental corporates may be pricing treatment in a way that discourages patients from having treatment requiring lab work.

It will be interesting to see what feedback the DLA receives – hopefully a more positive one in the coming months.

## WHAT DOES 2025 HOLD FOR US?

This is the million-dollar question! The industry seems to have had a bit of a lull prior to the budget announcement.

My gut feeling is that once the dust settles and patients figure out their own cost of living, they will start to spend again and we will see an increase in demand for dental treatment. I don't doubt that labs will have to look carefully at their costs and see how they have risen, and whether prices can be increased to maintain their profitability.

As always, if you would like to get in touch with feedback or to publish an article, don't hesitate to get in touch.

Enjoy the festive season!

**GET IN TOUCH**

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# Laboratory

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## MISSION STATEMENT

*Laboratory* nurtures connection, passion and quality within the dental technician community by showcasing inspirational individuals, best practice and technical brilliance.

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# Wrapped up and ready for 2025

**W**elcome to the November/December issue of *Laboratory* – the last one of 2024. It feels bittersweet to be wrapping up another year of insightful discussion, technical excellence and exciting innovation. It certainly hasn't been a uneventful year in dentistry. The announcements of an EU dental amalgam ban, new powers for dental hygienists and therapists, a NHS dental charge increase and provisional registration plans for overseas dentists are just some of the breaking news stories we have seen so far. A personal favourite was the medical breakthrough of a robot dentist completing its first dental procedure on a human.

Outside of the profession, we welcomed a new government and plans to implement a smoking ban are underway. I won't even mention what's been happening across the Atlantic...

Amongst the chaos, awards season has been underway over the past few months, with the final ceremony, the Dental Industry Awards, on the horizon. I would like to take this moment to thank each dental lab, technician and clinical dental technician who entered the awards this year, and congratulate all of the winners (page 10). You have truly raised the bar!

Speaking of seasons, love it or hate it, the festive one is just around the corner. While it might be too early to put up the Christmas tree in your lab, it's not a bad time to start making preparations. On page 40, three lab owners discuss how they manage the Christmas rush, when they close their lab, and how they show appreciation to their team members. If you were planning on giving Christmas bonuses to your employees, don't miss Matt Everatt's guidance on everything you need to know about tax rules on page 42.

A standout article in this issue has to be Nina Frketin's unforgettable journey to Uganda with Den-tech, a charity providing life-changing, accessible dental care to vulnerable people. On page 30, Nina shares the highs and lows of the trip, including the challenges they faced, eye-opening moments, and how it has left a lasting impression on her.

This issue's technical cases are also must-reads. On page 12, Dean Ward shares a complex denture case with dentist Rupert Monkhouse. Together, they demonstrate how a collaborative approach, trust and strong communication can result in a smooth process from start to finish. Similarly, Craig Mark Broughton highlights the importance of clear patient communication at every stage (page 16). His case shows how the use of flawless ovate pointics can create an unparalleled aesthetic result.

Lastly, thank you to all of this year's amazing contributors. If you would like to get involved with the magazine next year, please reach out. See you in 2025!

**LUCY VEAL**  
Editor of *Laboratory*



## ENHANCED CPD

Complete this issue's enhanced CPD online at [cpd.dentistry.co.uk](http://cpd.dentistry.co.uk) or scan the QR code. Email [cpdsupport@fmc.co.uk](mailto:cpdsupport@fmc.co.uk) if you're in need of guidance.

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# Laboratory's Lab Experts panel

Presenting **Laboratory's** editorial board – the Lab Experts helping to nurture connection, passion and quality within dental technology



**CRAIG MARK BROUGHTON**

Clinical dental technician and managing director, CMB Dental Laboratory



**ASHLEY BYRNE**

Associate director, Byrnes Dental Laboratory, part of the Corus group



**MASSIMO CICATIELLO**

Orthodontic dental technician and owner, Napoli Ortodonzia



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Dental technician, S4S Dental Laboratory



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Senior dental technician, Quoris 3D



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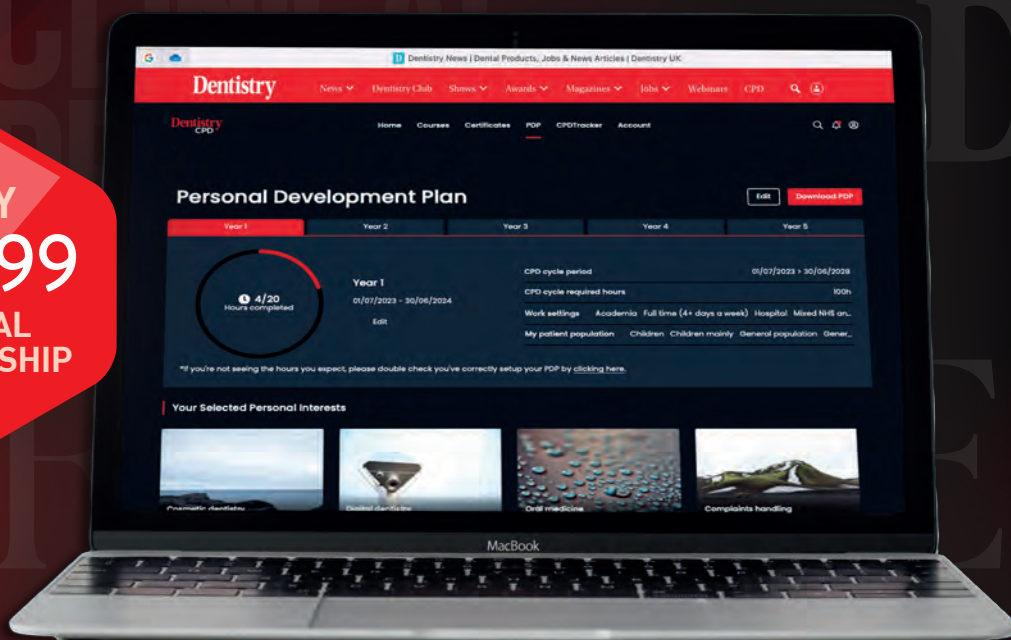
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# Number of suicides during fitness to practise investigations disclosed

**T**he cause of death for dental professionals who have died while fitness to practise (FtP) concerns were investigated or remediated have been released by the General Dental Council (GDC).

The report covers the period 2019 to 2022. During this time, 20 dental professionals died while their cases were active, with causes of death categorised as natural, external or unspecified, and one subcategory of suicide.

The GDC says it has replaced exact numbers within number ranges (ie 1-3, 4-6, 7-10), to minimise the risk of individuals being identified through calculations of the reported data.

The figures are:

- Natural – seven to 10
- Deaths from external causes – seven to 10, of which one to three were confirmed as suicide
- Other/unspecified – one to three.

The report has included deaths in the subcategory of suicide when 'suicide' was listed on the death certificate or notification. Death certificates in

Scotland and Northern Ireland do not use the word 'suicide' or any synonym of it. All overseas deaths have been categorised as 'other/unspecified' due to difficulties relating to interpretation of the cause of death in all cases, which may also contribute to an underreporting of the number of deaths by suicide.

In the same period of 2019-22, there were 3,926 cases referred for assessment, with 751 referred to a practice committee for hearing.

The GDC notes that cases referred for assessment and to a practice committee for a hearing can be the same case. Cases can also span more than one year or be referred back, so figures are subject to double counting.

Further, the regulator highlights that an individual dental professional may have more than one active case at the same time, so cases do not equate to the total number of dental professionals.

## COMPLEX ISSUES

Lord Toby Harris, GDC chair, said: 'The report serves as a call for everyone in the

dental sector to reflect on the environment, systems and processes involved in being a dental professional.

'It took longer than we expected to complete the work and some of the issues have been complex. But we have delivered process improvements in parallel and taken care to ensure we can be confident in the data reported.

'Every death is a tragedy, and when the data and what we are doing to improve FtP are put aside, what is left is the death of people, some in tragic circumstances. We must consider the families, loved ones and colleagues for whom the pain and hurt are still very raw, and we offer them our condolences.'

According to the GDC, recent improvements have been made to the FtP processes. These include revised communications and staff training, as well as an ongoing pilot into the use of initial inquiries to enable the assessment of clinical practice concerns earlier in the process and improve timeliness.

# ARF remains unchanged for 2025

**T**he General Dental Council (GDC) has announced that the annual retention fee (ARF) will remain unchanged for 2025.

This puts the ARF as £621 for dentists and £96 for dental care professionals (DCPs).

The decision to maintain the 2024 level comes after the council of the GDC reviewed its plans for the next three years. It found that a combination of sound financial management, reducing the level of the GDC's reserves over the three-year plan, making use of legislative changes to amend overseas registration examination (ORE) fees, and the continued growth in the size of the registers allowed the ARF to remain unchanged. The regulator added that increasing the ORE fees and introducing an ORE application fee contributed towards the ORE becoming cost neutral. This means the

costs are charged where incurred instead of from existing registrants.

## PROVIDING 'STABILITY'

Lord Toby Harris, chair of the GDC, said: 'I am very pleased that council's decision means that the ARF can continue unchanged next year, following the reduction which took effect last year.

'It follows years of developing a strong culture of operational planning and delivery along with sound financial rigour.

'Council's priority is public protection and ensuring that the GDC can deliver its strategic objectives as an effective regulator is essential to this.

'It is also important that we understand and respond to the needs of the dental sector and looking to provide stability in the ARF is one way we can do that.'



# Fake NHS practice scams patients

**H**undreds of people may have been scammed by a website offering NHS appointments at a fake dental practice, according to officers from Trading Standards.

Advertised as 'The Dental Practice Lincoln', the website asked patients to input their personal details and pay for their first appointment in advance.

A BBC report described one patient who spotted the website on Facebook and signed up with his wife after searching for a new NHS dentist for six years.

They shared personal details, including their passport numbers. Once they realised the practice was non-existent, they spent £200 on new ones out of fear that their personal data had been stolen.

Lincolnshire Trading Standards confirmed that similar websites have offered NHS treatments at fake dental

practices in both Norfolk and West Yorkshire. The British Dental Association (BDA) warned of scams, writing on X: 'Criminals are now preying on desperate patients left with no options.'

'It's another reason why we need real urgency and ambition from government on NHS dentistry.'

## DENTAL ACCESS ISSUES CONTINUE

This comes as new data shows that up to 97% of new patients who try to access NHS dental care are unsuccessful.

The Office for National Statistics's *Experiences of NHS healthcare services in*

*England* shows that 96.9% of those who do not have a dentist and who tried to access NHS dental care were unsuccessful.

Of those who failed to secure care, 11% were recorded as going private, 1.6% reported going to A&E and 1.1% reported going to their GP. More than three quarters (78.5%) did nothing, with the BDA warning that it will only lead to greater burdens on the health service if early signs of disease are left unchecked. Of those who tried to access NHS dentistry, but did not have a dentist, 33.5% reported having an urgent need for NHS care, with 21.3% stating they were in pain.



# The 2024 award winners

**L**aboratory is thrilled to announce all the winners from this year's awards who won in a dental technology category.

The Dentistry Awards, Clinical Dentistry Awards and Irish Dentistry Awards showcased an impressive line-up of talent, with each category celebrating excellence in dentistry, including recognition for the dental labs and technicians who bring intricate restorative solutions to life.

This year's winners have set new standards for innovation, precision and craftsmanship in dental technology. Recognised for their exceptional contributions, the winners represent the vital role dental labs play in delivering high-quality, patient-focused outcomes.

Congratulations to all the winners!

## THE DENTISTRY AWARDS

### Dental Laboratory of the Year

Remo Dental Laboratory – Winner  
Ceramics Designs – Highly commended

### Dental Technician of the Year

Nina Frketin – Winner  
Nick Jones and Stuart Jones – Highly commended

### Clinical Dental Technician of the Year

Gosia Ciepiela – Winner  
Matthew Varley – Highly commended

## CLINICAL DENTISTRY AWARDS

### Aesthetic Dental Laboratory

Ceramic Designs – Winner  
Vivo Dental Lab – Highly commended

## IRISH DENTISTRY AWARDS

### Dental Laboratory of the Year

PD Ceramics Ltd – Winner



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# A dual approach

Dental technician **Dean Ward** and dentist **Rupert Monkhouse** highlight the various treatment stages of replacing a lower denture from their own perspectives



**DEAN WARD**

Dental technician, Innovate Dental Laboratory



**RUPERT MONKHOUSE**

Dentist, Woodborough House

In this article, dentist Rupert Monkhouse and dental technician Dean Ward present their winning Dentistry Clinical Case Award entry, highlighting the various treatment stages of replacing a lower denture from their own perspectives.

**CASE REPORT**

**Rupert Monkhouse**

A 74-year-old female patient was referred internally from a colleague within the practice for a new lower denture. Her current lower chrome was aided by an implant in the position of the LR3 and an old post-retained custom abutment in the LL3. The denture was extremely worn and had worn through the two abutments (Figures 1a and 1b). In this case, the bilateral free end saddle had not been regularly relined, causing a lack of posterior support. This meant, during loading, the posterior region would sink down, pivoting on the two abutments, and eventually breaking through. The patient did not want further implant surgery and so a new removable option

was the only way forwards. Radiographic findings showed good levels of bone around both the lower implant and post core custom abutment (Figure 2). The root canal status was also excellent. The upper dentition was heavily restored but stable.

**Dean Ward**

As a technician, when you receive a Kennedy class 1 case it can cause stress during the planning phase as there aren't many options to make the denture stable and preserve what bone is left from previous wear.

**TREATMENT PLANNING**

**Rupert Monkhouse**

In the consultation appointment, I took a scan to allow some initial planning of potential designs and identifying the abutment systems, which proved a challenge given the age of the denture and wear over that time to the abutments. During the second appointment, we took primary impressions. This case was quite challenging due to the long but narrow arch form and severe resorption.

The impression was built with putty in the posteriors and heavy and light body wash on top. The upper scan model was used as the opposing and an Occlufast bite was taken (Figure 3). This was then returned to Dean to produce special trays, but we also had to decide what we would do with the custom abutment.

**Dean Ward**

The main question I had to answer was how can we make this denture stable? The RPI system is notoriously outdated and proven to cause more harm than good. So where could we get the stability from?

We opted to place composite rest hooks on the cingulum and the custom abutment on the LL3 was useful if it was trimmed down or replaced. I ran the design past our chrome technician Chris Hesketh, which he approved.

That left us with the small problem of the abutment. We couldn't replace it, but we

had to utilise it! Rupert requested me to design my ideal abutment shape and produce a guide so he could adjust it prior to impressions.

**TREATMENT PREPARATION**

**Rupert Monkhouse**

The next visit was probably the busiest of the treatment plan. I had to prepare the incisors with the cingulum composites, as well as reduce the abutment of the LL3 as per Dean's plan, before taking the all-important secondary impression.

Using the prep guide, I reduced the LL3 both labially and occlusally, essentially making a crown prep similar to a telescopic attachment. The old abutment remained stable, so we decided to leave it as it was rather than making a true telescoping coping, as this would require us to reduce even further. I then added the lingual composite ledges as per the Scandinavian design principle to maximise the support from the teeth and to balance the pressure on the two abutments, which led to the initial



FIGURES 1A and 1B: Initial situation



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**GDC anticipated outcome:** C

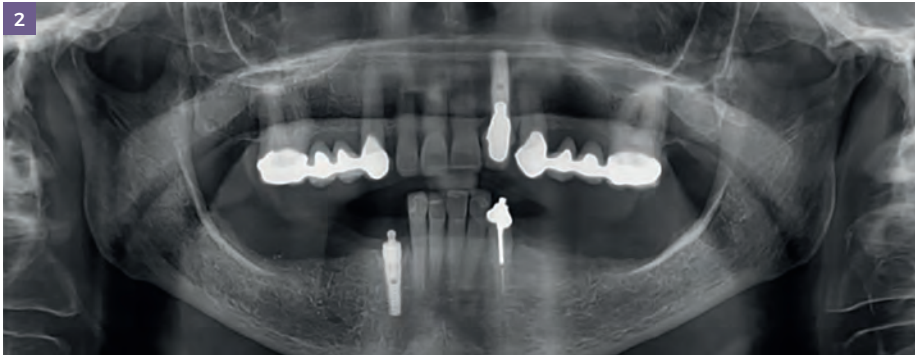
**CPD hours:** One

**Topic:** Dentures

**Educational aims and objectives:** To present a denture case that showcases a collaborative approach between dentist and technician.

This article qualifies for one hour of enhanced CPD. Turn to page 50 to answer the questions.





**FIGURE 2:** The radiograph showed good bone levels around both the lower implant and post core custom abutment



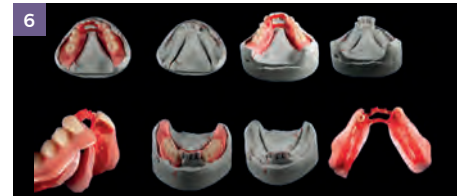
**FIGURE 3:** Primary impression



**FIGURE 4:** Jig



**FIGURE 5:** Secondary impressions



**FIGURE 6:** The impression was cast and duplicated with silicone

failure. The Scandinavian design aims to reduce gingival coverage, allowing good hygiene, while maximising the support through the long axis of the tooth (Figure 4).

Once this was completed, I took the secondary impressions. Again, I used putty over the free end saddle areas first before using various viscosities of silicone to pick up the implant and the details (Figure 5).

This was then sent to Dean to cast up and we decided to produce a pattern resin try-in to confirm the accuracy of the definitive cast.

### Dean Ward

The beautiful impression was cast and duplicated with silicone. Figure 6 shows a disposable duplicate cast, as pattern resin is a messy material.

The reason we decided on a pattern resin try-in was so the patient got an overall feel of the prosthesis and it helped to manage her expectations before the costly chrome work was made. It also allowed us to ensure we had the accuracy in the model that we needed for such an intricate framework.

### Rupert Monkhouse

The try-in was successful, bar an alteration needed to the shade, so the work was returned to Dean to have the framework made. For the next step, we decided to use the altered cast technique, so Dean had to add the impression trays once the framework was made.

Given increasing support was the primary



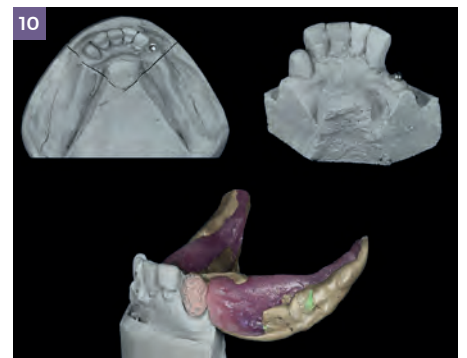
**FIGURE 7:** Chrome framework



**FIGURE 8:** Light body fit check



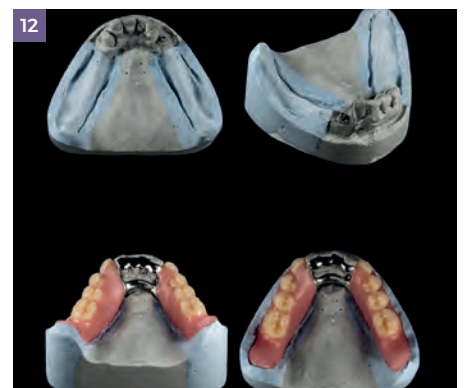
**FIGURE 9:** Medium bodied silicone impression



**FIGURE 10:** Altered cast technique



**FIGURE 11:** Altered cast pour



**FIGURE 12:** Wax try-in added



FIGURE 13: Shade alteration



FIGURE 14: Fit



FIGURE 15: Lab work



FIGURE 16: Final result

aim for our improvement of this case, we felt this additional step was worthwhile.

## FRAMEWORK AND ALTERED CAST TECHNIQUE

### Dean Ward

With pre-planning all approved, the next stage was to speak to Chris Hesketh regarding the final points of the design.

Rupert and I opted to build a composite crown on the LL3, so this had to have the correct substructure. The reason for this was room. With the small amount of room we had, even with reductions, the composite is considerably better at disguising metal telescopics than acrylic. The chrome arrived three weeks later and had been executed to perfection. Then I had to add acrylic special tray material to the free end saddles so that there was enough room for Rupert to border mould and get that final impression for the altered cast technique (Figure 7).

### Rupert Monkhouse

The framework was tried-in to ensure it was accurate. Thanks to Chris Hesketh's impeccable work, it clicked right into place!

I then did a light body fit check on the trays to ensure a passive fit (Figure 8).

The impression was taken with medium bodied silicone (Figure 9). The framework was placed with finger pressure on the framework and rests to simulate the patient in occlusion.

Functional border movements can then also be done to ensure an accurate fit. The

work was sent back to Dean for the fiddly part of this case. Not many technicians do this technique, so we were really stretching ourselves here.

### Dean Ward

The altered cast technique is something you don't see very often but is proven to work well if executed correctly. I knew Rupert had used this technique before and we had discussed what can go wrong if not done correctly before we started, so I was confident.

Firstly, the secondary model is sectioned 2-3mm from the teeth and the chrome is seated so is sat perfectly onto the supporting teeth (Figure 10).

The model is then cast using the same type four stone, remembering to preserve the moulded borders. The wax try-in was added so the stability, bite, fit and aesthetics can be given the green light for finish (Figures 11 and 12).

## TRY-IN APPOINTMENT

### Rupert Monkhouse

The try-in appointment went very smoothly. The patient noted how comfortable this try-in was compared to the extensions of the pattern try, which confirmed the bonus benefit of the altered cast, double checking the functional extensions.

We felt the shade was still a touch off, so we planned to go half a shade down but go straight to processing. I also took photos with the gingival shade guide to allow Dean to characterise correctly (Figure 13).

### Dean Ward

I had to process first before the composite crown was made. I normally injection mould almost all dentures, however this was too precise and needed a different approach, so I processed in pouring acrylic.

This allowed more control as well as peace of mind this would be a perfect fit, which was important in such a complex case with so much work going into it!

Then I had a discussion with Oliver Wade, a friend at Beaver Dental, who was building up the composite crown over the telescopic LL3. We shared pictures and had a discussion about how we could get the composite and acrylic to match as best we could.

Once this was all finished, I added a little bit of age-appropriate pink to the gums and a small amount of staining to the teeth for a natural appearance, based on the pictures.

## FINAL RESULT

### Rupert Monkhouse

It then came to the big day – the fit. The denture fitted beautifully with no adjustments required (Figure 14). The longest part of the appointment was teaching the patient the path of insertion and withdrawal (Figure 15).

The patient was extremely happy with the comfort and aesthetics (Figure 16). Technically, I was thrilled with the stability, it was extremely solid in occlusion and pressing on the free end saddles. Our plans to maximise and balance support were successful!

## REFLECTIONS

### Rupert Monkhouse

Reflecting on the case, I was really happy with how it ended up. Not only the aesthetics but also how smoothly the whole process went. This was a complex case, but through clear communication between myself and Dean, as well as trusting each other's opinions and abilities, we were able to manage this case with minimal fuss.

### Dean Ward

I enjoyed this case all the way through. The denture will always get praise for how it looks, but for me, to take this situation and turn it into something that works very well and will last for years is the biggest achievement. **L**

*The authors would like to thank dental technicians Chris Hesketh and Oliver Wade for their additional support in this case.*





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# Perfecting ovate pontics

**Craig Mark Broughton** shares an immediate denture case that achieved a precise fit, natural look, and satisfied patient



## CRAIG MARK BROUGHTON

Clinical dental technician and managing director, CMB Dental Laboratory

**A** patient was referred to me for a consultation to determine whether she should receive complete immediate dentures or implant-retained/supported dentures.

### PATIENT EXAMINATION

- The patient is a 67-year-old female
- She has vitamin B12 injections every three months and folic acid 400ug tablets once a day, along with ferrous fumarate, calcium carbonate, colecalciferol, forceval capsules, furosemide 40mg, lansoprazole 30mg and atorvastatin
- She has chronic obstructive pulmonary disease (COPD) and asthma
- She stopped smoking three-and-a-half years ago.

The intraoral exam showed pink and healthy tissues to the upper and lower ridges (Figure 1). Periodontal issues surrounding gum health, worn occlusal surfaces of the anterior teeth and a lack

of posterior dentition had resulted in reduced occlusal vertical dimension (OVD). The anterior teeth had started to drift labially with diastemas that the patient did not like (Figure 2).

An extraoral exam showed no palpable lymph nodes. The patient had a bilateral click in the temporomandibular joint (TMJ) and the occasional shooting pain when opening. She also had a loss of upper lip



**FIGURE 1:** The patient presented with healthy tissues to the upper and lower ridges, periodontal issues, worn occlusal surfaces of the anterior teeth and a lack of posterior dentition



**FIGURE 2:** The anterior teeth have started to drift labially



**FIGURE 3:** Casts were made and mounted on the articulator

definition and furrows appearing at the angles of the mouth.

### IMPLANT-RETAINED OR IMMEDIATE?

The patient previously had an implant consultation and was referred to me to discuss the option of immediate dentures. I advised the patient that, although it is an available option, I could not guarantee the dentures would be retentive. This was due to a number of factors:

1. The patient had a lot of posterior alveolar bone resorption and there was very little available to aid in retention
2. Due to bone resorption and tissue remodelling, immediate dentures would not last very long and would require relines at set intervals during and post-healing after the removal of the teeth to ensure the best fit achievable.

The patient understood the complications involved and opted to go for the immediate dentures over the implants, primarily for cost implications.

### PROPOSED TREATMENT PLAN

1. Primary impressions
2. Special tray impressions
3. Bite registration
4. Try-in of posterior teeth to check the correct bite registration and confirm the shade
5. Extraction under local anaesthetic (XLA) of 13 teeth and immediate fit of complete upper and lower dentures
6. Review one-week post XLA (earlier with the dentist if required)
7. Three-month post XLA, relines of upper and lower denture
8. One-year post XLA, new definitive dentures made.

Additional relines may be required between times and the patient was made aware of this.



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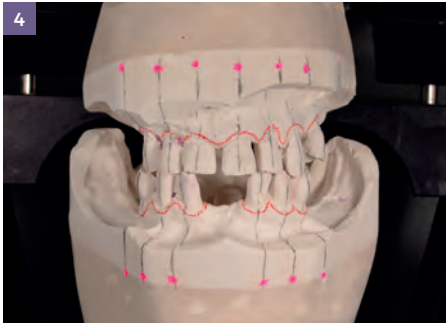
**CPD hours:** One

**Topic:** Dentures

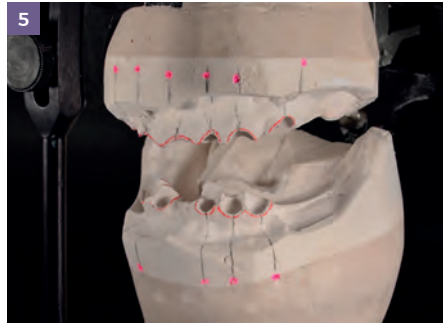
**Educational aims and objectives:** To present an immediate denture case, highlighting the treatment plan and successful outcome.

This article qualifies for one hour of enhanced CPD. Turn to page 50 to answer the questions.





**FIGURE 4:** I used a pencil to mark the long axis of the teeth, and a red pencil to mark 1mm beyond the gingival margin



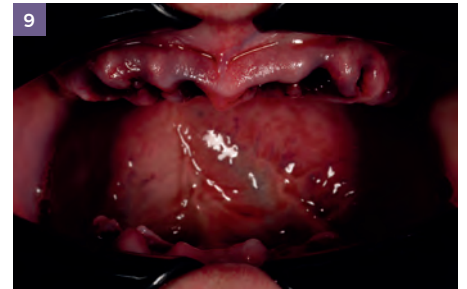
**FIGURE 5:** The teeth were then removed and I created the ovate pontics 3mm deep in an approximate shape of the root



**FIGURE 6:** The denture teeth were then set in wax



**FIGURES 7 and 8:** The dentures were then processed in Ivoclar Ivobase, trimmed and polished – note the polished surface of the ovate pontics



**FIGURE 9:** The extraction of 13 teeth under local anaesthetic was carried out by Dr Steph Durham

## OVATE PONTICS

I opted to use ovate pontics over the immediate sites in this case. There has been a number of trials over the years to create a pontic that both has an aesthetically natural appearance and proves hygienic. Both of these are accomplished by the use of ovate pontics.

The overall goal is to achieve the preservation of interproximal tissues post-extraction by maintaining socket size, shape and gingival tissue. This will then create the illusion that the denture teeth are erupting from the gums.

During the tooth extraction, it is important that the facial cortical plate of bone has been preserved. This will allow the pontic to create a more natural tooth contour when placed. This was relayed to the prescribing dentist.

The pontic itself should be approximately the same shape as the root of the tooth to be extracted, though only extended apically by 3mm

The pontic itself should be approximately the same shape as the root of the tooth to be extracted, though only extended apically by 3mm. It is also important that the tissue side of the ovate pontic is highly polished to maximise its hygienic potential by being easier to clean and promoting healing. The usual tissue shrinkage through healing will usually leave a depth of 1.5mm.

## CASTING, SETTING AND POLISHING

First of all, the casts were mounted on the articulator (Figure 3) and, using a set of dividers, I marked the length of all the teeth to be extracted.

Using a pencil, I then marked the long axis of the teeth to ensure that the denture teeth, and subsequently the ovate pontics, follow the same axis. In red pencil I marked 1mm beyond the gingival margin to represent the free gingivae, which will create the contour of the denture tooth when the dentures are placed (Figure 4).

The teeth were removed and, using a small spherical burr, I created the ovate 3mm deep in an approximate shape of the root of the tooth to be removed (Figure 5).

The denture teeth were then set in wax, ensuring balanced occlusion and

articulation. For this case I used Enigma Life teeth from Schottlander (Figure 6).

Following this, the dentures were processed in Ivoclar Ivobase, trimmed and polished (Figures 7 and 8).

## FIT AND ADJUSTMENTS

The extraction of 13 teeth under local anaesthetic was carried out, followed by an immediate fit of complete upper and lower dentures (Figures 9 and 10).

The adjustment made was a reduction of the buccal flange on the left-hand side by 1mm. As the patient was still under the effects of local anaesthetic, it was important to be thorough with visual checks to look for any blanching of the tissues. This would indicate that the denture is exerting too much pressure on the soft tissue and could ultimately lead to discomfort and trauma in that area.

Occlusion was checked, showing good and even occlusion throughout the posterior teeth, and no adjustments were needed. The patient was very happy with the outcome (Figures 11 and 12).

Good communication and patient compliance helped make this case successful. It was reiterated at every appointment that it was always going to



**FIGURE 10:** The immediate fit of complete upper and lower dentures



**FIGURE 12:** Before and after – note the increase in the upper lip appearance



**FIGURE 11:** The patient was very happy with the outcome – the slight downward slope of the upper lip is due to the anaesthetic effect

It was reiterated at every appointment that it was always going to be difficult to obtain adequate retention from the dentures and that the use of fixative would be needed

be difficult to obtain adequate retention from the dentures and that the use of fixative would be needed.

The patient understood the challenge and was more than happy to comply.

**AFTERCARE**

A provisional review was booked in for 24 hours post-XLA. The effects of the anaesthetic will have worn off and the denture may have caused soreness, so small adjustments may need to be made. However, the patient cancelled this appointment as she reported the dentures were comfortable.

The patient was told to leave the dentures in as much as possible for the first 48 to 72

hours. This is because the ovate pontics will act as tissue compression over the extraction sites, creating a more sterile environment for clotting and, ultimately, healing.

I also advised the patient to remove the dentures three to four times per day for cleaning, using a toothbrush and antibacterial soap. At the same time, I recommended she use a warm water salt mouthwash to reduce oral bacteria.

To reduce the risk of dry socket (alveolar osteitis), when dentures are removed, the patient was told to avoid sucking the extraction sites or using straws. The clot must remain in situ to promote bone and nerve healing. Any prolonged periods of severe pain will require an appointment

with the dentist.

For the first 48 to 72 hours, the patient was advised to eat soft foods only and to completely avoid hot drinks until the effects of the anaesthetic had fully subsided.

Cheek and tongue biting was to be expected. After a long period of having no posterior dentition, the tongue and cheeks will have started to relax and spread into this space. Placing a denture in this area will require retraining the cheeks and tongue where they need to be.

The use of fixative may be needed due to the lack of posterior alveolar ridge. The patient was advised to only do so on the palate of the upper and the posterior free-end saddles on the lower – do not use it over the ovate pontics and avoid the sockets.

The procedure the patient had is a huge change, and so a lot of perseverance was required for the ovate pontics to be successful. ■

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# Five things I can't work without

**Carmel Vickers-Wall** shares five crucial tools for perfecting her work and staying focused



## CARMEL VICKERS-WALL

Clinical dental technician,  
Mango Dental Technologies

I am a dual-qualified dental nurse and clinical dental technician (CDT) with nearly 10 years of experience in various fields of dentistry. I started working as a CDT in July 2023 after graduating from the University of Central Lancashire, and I currently work at Mango Dental Technologies where I work in the onsite denture clinic and at the bench.

I see all my own patients and work in collaboration with a fantastic dentist for all my partial denture cases. Between us, the system works extremely well, with many patients commenting on how our teamwork has provided them with the best treatment.

My passion for dentistry comes from wanting to provide people with the best-quality dentures, which restore function without compromising on aesthetics. There is no greater feeling than when you hand a patient a mirror and they are blown away by the work you have done! In order for me to achieve this, let me share with you my top five things that I cannot work without.

### 1. HANDHELD KITCHEN TORCH

Every dental technician will know the frustration of not getting their wax as smooth as they possibly can. When I was at university, we shared blow torches, and I hated waiting around for one to become available. It was only when I was at home, seeing my mum use this in the kitchen that I thought it was perfect!

I can hold it like a pen, which is more comfortable, and I can change the size of the flame to ensure I just glaze over the wax to get a perfect, smooth finish. I find it a lot more convenient to use than the large blow torches we usually find in the lab. Even better, they are only £8.99 on Amazon!



### 2. PEN-POINT CARVER

One of my favourite things to do is festooning; I love trying to shape and contour my wax to simulate the natural contour of the oral tissues. Unlike many other technicians, I don't tend to overdo this as I find that, when I am in the clinic, I make too many changes to the teeth. However, I still want it to look natural!

Although an Ash 5 is a great tool to have for this, I find my pen-point carver is spot on for getting that perfect v-like shape between the teeth that flows rather than looking unnatural.

### 3. SILICONE IMPRESSION PUTTY

Every technician will know how frustrating it is when clinicians don't overextend their impressions! This is one of the first things I noticed when I started working in a dental laboratory. As a CDT, I try to ensure I capture as many landmarks in my primary impressions as possible.

I know some people love to use greenstick, but unfortunately it's just not something I have mastered (yet!).

So, for now, I simply use impression putty to border mould my primary trays. This works every time and it's far less messy. I burn myself often enough at the bench, I don't need to be doing it in the clinic!

### 4. KOLBECK'S OCCLUSAL MEASUREMENT PLATE (OMP)

This is one of those tools that I think every dental technician should have in their toolbox, especially when you are starting



out. It is essentially a flat piece of plastic with average measurements on it. I use it to help me set up complete dentures.

As a CDT, I use a Fox's Bite Plane guide to ensure my occlusal plane is spot on. This tool allows me to make sure I'm following my block correctly. I also use it for fabricating my occlusal rims. I love the measurements on there and find it super handy to have, even if it is just to select the correct maxillary central incisors. Don't knock it before you try it!

### 5. LOOP EARPLUGS

Fabricating high quality dentures isn't an easy task and it often takes a high level of concentration (something I often lack). My Loop earplugs are a godsend! I find that they help my concentration by blocking out external distractions. If I have a particularly hard case I am working on, I use my Loops – no music, just blissful silence. They have massively improved my productivity, and therefore the quality of work that I produce. I highly recommend them to anyone who is particularly noise sensitive and wants to be able to stay focused for longer. 🎧

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# Picture perfect

Gianluca Del Genio shares how photography is instrumental to communication, precision and quality



## GIANLUCA DEL GENIO

Dental ceramist,  
Royal Dental Lab

In today's rapidly evolving world of dental technology, advancements in materials, techniques, and systems have redefined how dental professionals work and collaborate. Among these innovations, one tool has emerged as indispensable in ensuring the highest standards of quality and communication: photography.

### WORDS AREN'T ENOUGH

As digital platforms and social media increasingly influence the dental industry, photography has become an essential method for communication between dental practices and laboratories, and a powerful tool for showcasing work and skills to potential clients and colleagues.

Sharing high-quality images of completed cases on platforms such as Instagram, Facebook or professional networks allows practitioners to demonstrate their expertise and attract new patients or collaborators. For technicians, presenting visually stunning cases on online portfolios or social media feeds can increase visibility and highlight craftsmanship in a way that words or technical descriptions simply cannot.

In many cases, photographs serve as the first point of contact between a prospective patient and a dental professional. Therefore, high-quality images speak volumes about the skill and precision involved in each case and can greatly influence patient trust and treatment decisions.

### THE POWER OF PHOTOGRAPHY

While traditional methods still play a crucial role, the addition of high-resolution digital images, especially macro photography, allows technicians to share vital information with dentists that might be otherwise overlooked in physical methods.

As a dental technician, I have experienced the power of photography in bridging communication gaps. High-quality images provide dentists with a clear, detailed view of the work in progress. In particular, macro





# Laboratory



photography is used to send images of crowns, veneers or other restorations to the dentist for approval before final delivery. This ensures that both small mistakes and key aesthetic details, such as colour matching and tooth morphology, are addressed before the work reaches the patient. Through photography, the dentist can request adjustments based on visual analysis, enhancing the overall quality of care.

By reviewing images, we can identify minute imperfections and details that make the difference and that may not be visible to the naked eye, making necessary corrections before finalising the product.

## ANALYSING MORPHOLOGY

High-quality photography allows us to study the correct shades, translucency and overall morphology of the tooth, which are critical in achieving a natural look and optimal outcomes. By capturing, analysing and sharing detailed images, we can address potential issues before they become problems, resulting in superior work that stands the test of time. This is key to producing high-end aesthetic results that not only look good on day one but also stand the test of time.

By using Reflex cameras with appropriate lighting setups and flashes, even small details such as the transition lines, tooth axes (especially in anterior teeth), and patient-specific shapes can be thoroughly examined.

## ATTENTION TO DETAIL

Choosing the right background, lighting, and positioning for each photo can transform the way a dental restoration is perceived.

A well-presented photograph not only showcases the beauty of the final product but also emphasises the attention to detail and professionalism that went into the work. Photography plays a critical role in dental technology, emphasising its power to communicate the quality of clinical work to both colleagues and dentists. It also allows professionals to display their expertise.

Each case must be treated individually, rather than being approached with a standardised method. The purpose of dental photography is not only to present the best visual representation of a case, but to remind you that behind each image is a real patient whose needs and satisfaction must be prioritised. [L](#)



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# Pathway to maxillofacial technology

Karen Boyd shares what makes a maxillofacial prosthetics career both challenging and rewarding



**KAREN BOYD** Education officer,  
Institute of Maxillofacial Prosthetists  
and Technologists (IMPT)

**M**axillofacial prosthetics or reconstructive science is a branch of healthcare science, historically evolved from undergraduate training in dental technology, followed by postgraduate study to enable the delivery of direct clinical rehabilitation and care. This is provided to patients who have suffered from craniofacial defects as a result of cancer, trauma or congenital conditions.

This work includes, but is not limited to, design and manufacture of medical devices to rehabilitate, such as facial prosthesis (ie orbital, ears, nose prosthesis), indwelling ocular prosthesis, body prosthesis (ie digits, partial limbs, breast and nipple prosthesis), as well as surgical planning and design of templates and guides, implants and diagnostic prototypes. These devices are custom made and treatment plans are designed for each individual patient.

## COMPLEX AND COLLABORATIVE

Maxillofacial prosthetists (MfP) and reconstructive scientists (RS) are dual-qualified, registered healthcare professionals (General Dental Council/Health and Care Professions Council), usually with full IMPT (Institute of Maxillofacial Prosthetists and Technologists) membership, delivering care directly to patients.

In the UK, this clinical role has its roots in dental technology, and until very recently the route to qualification has been BSc dental technology, followed by a postgraduate-level qualification at MSc level. Very soon, the route to qualification will be opened up to other science based undergraduate degrees, which will broaden the pool of potential candidates who can enter the profession.

Medical devices in maxillofacial prosthetics or reconstructive science may

be implant retained, require digital planning, are complex in nature, and usually require a collaborative approach. This means working closely with colleagues in craniofacial reconstruction, head and neck cancer surgery, restorative dentistry, ear, nose and throat (ENT), ophthalmology, neurosurgery, plastic surgery, orthopaedics, dermatology, breast services and burns services.

## EQUALLY CHALLENGING AND REWARDING

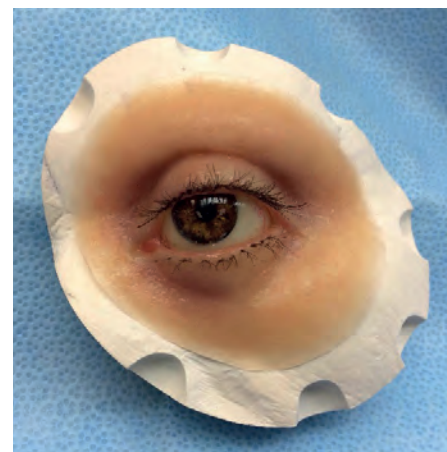
Planning for such devices begins at diagnosis stage. Patients undergo a holistic needs assessment and are provided with all rehabilitation options. Once under the care of the MfP/RS, these patients will return to the clinic for maintenance and replacement of devices – often for the rest of their lives, so the career is both challenging and rewarding in equal measure.

This profession is very hands-on, practical, science-based and academically demanding. MfPs/RSs are a crucial part of the treatment pathway in craniofacial rehabilitation and head and neck cancer. As part of a multidisciplinary team effort, the MfP/RS is extremely valuable in contributing to positive patient outcomes.

## ROUTES TO ENTRY

Currently:

- BSc dental technology – 2:1. Followed by either:
  - Entry to the scientific training programme (STP) – MSc reconstructive science, King's College London (KCL). This is a three-year, fully-funded post in a hospital, employed on band six AFC (agenda for change)
  - Entry to the distance learning MSc maxillofacial prosthetic rehabilitation. This is a three-year, self-funded MSc, usually while in employment in an oral and maxillofacial surgery (OMFS) department at KCL
  - Entry to the full-time MSc. This is a



two-year, self-funded, full-time taught MSc at KCL.

And:

- Post qualification – registration with the IMPT/HPCPC.

Each of the above training pathways may lead to registration with the HCPC as a clinical scientist – some may require completion of the Academy for Healthcare Science (AHCS) equivalence process.

## NEXT STEPS

Recently, the membership of the IMPT voted in favour of accepting alternative science-based degrees onto the MSc training programmes, with the publication of the *Fundamentals of reconstructive science* handbook, which will be used by trainees during the MSc to enhance their knowledge and skills in regard to what would often be seen as 'dental techniques'.

This means that applicants with other relevant BSc qualifications can now enter the programme if they meet the criteria and are successful in other parts of the application process. [L](#)

## FOR MORE INFORMATION

If you have any queries or are interested in a career in maxillofacial prosthetics or reconstructive science, contact [karen.boyd2@nhs.scot](mailto:karen.boyd2@nhs.scot).





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# Budget hits hard

Matt Everatt shares why he thinks dental labs have been 'hit hardest' by the Labour Party's autumn budget



## MATT EVERATT

Editor-in-chief, *Laboratory* and director, S4S Dental Laboratory

**D**ental laboratories in the UK, like many small businesses, have been hit hardest in this autumn's budget, and will face a challenging financial landscape in the coming months.

In the 2024 autumn budget, Chancellor Rachel Reeves announced big changes to national insurance contributions (NICs) and an increase in the national minimum wage (NMW), both of which will raise the cost of employment.

In addition, labs will face a huge hit with the change in business rates relief being reduced from 75% to 40% – this is complex and not easy to quantify in this article.

Two significant changes stand out:

1. Employer NIC rate increase: beginning in April 2025, the employer NIC rate will rise from 13.8% to 15%, with the threshold for contributions dropping from £9,100 to £5,000
2. Increase in NMW: recent increases in the NMW mean that many employees, especially those in entry-level or support roles, will see their wages rise, directly impacting payroll expenses for employers in labour-intensive fields such as dental technology.

## BREAKING DOWN THE NUMBERS

Here is a real life example of how these changes will financially impact a dental laboratory with 10 employees earning £30,000 annually.

Many labs will need to reconsider their financial strategies and explore cost-efficient operational changes to remain viable

## Cost implications of employer NIC

Under the new NIC rate of 15% with a reduced threshold of £5,000, each employee's NIC contribution will increase significantly. Let's break it down:

New NIC cost per employee:

- Taxable earnings: £30,000 – £5,000 = £25,000
- NIC at 15%: £25,000 x 15% = £3,750 per employee
- For 10 employees, the NIC cost would be £3,750 x 10 = £37,500.

NIC cost under previous rate:

- Taxable earnings: £30,000 – £9,100 = £20,900
- NIC at 13.8%: £20,900 x 13.8% = £2,884.20 per employee
- For 10 employees, the NIC cost would have been £28,842.

This means a laboratory with 10 staff on £30k per annum will pay an additional £8,658 annually due to the NIC rate increase.

## Increased payroll costs

It is likely that most labs already pay above the NMW and even above the real living wage (RLW). However, with national minimum wage increases, dental labs may need to raise wages even for roles already above the minimum wage, to maintain competitive pay and retain skilled staff.

Rising wage rates may further push employees into higher NIC tax brackets, increasing contributions and compounding financial pressures on the laboratory.

## POTENTIAL CONSEQUENCES

For many dental laboratories, this increased financial burden could have several consequences:

- Reduced profit margins: dental laboratories may already operate within tight profit margins due to specialised labour and materials costs. The additional NICs and wages will further compress these margins
- Cost-cutting measures: laboratories may have to reduce operational


costs, which could mean cutting back on employee benefits, training, or even scaling back staffing levels

- Potential price increases: as costs rise, some dental labs might pass on expenses to clients, potentially increasing the cost of dental restorations and prosthetics for dental practices and, in turn, patients will pay more for their treatment and dental care
- Retention and recruitment challenges: higher costs may impact the ability of dental labs to attract and retain skilled technicians, especially with competition from other industries that can offer more competitive salaries and benefits.

## WHAT DOES THIS ALL MEAN?

The recent changes in NIC rates and NMW are intended to support public services and improve welfare for employees, but they impose substantial financial demands on small- and medium-sized businesses.

With the average dental laboratory employing five to 10 people and larger labs up to 100, we are hit the hardest. And with rising costs across the board, many labs will need to reconsider their financial strategies and explore cost-efficient operational changes to remain viable, let alone competitive.

Alternatively, increase prices and pass these costs onto the practice and patient, ultimately leading to an increase in inflation. 





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# Life-changing mission

Nina Frketin shares the unforgettable experience of transforming lives through dental care in Uganda



**NINA FRKETIN**

Senior dental technician,  
Mango Dental Technologies

Embarking on a spontaneous adventure can lead to unforgettable experiences, and that's exactly what happened when I found out about the Uganda Charity mission.

After learning that my friend and head of the Den-tech charity Andrea Johnson was going alone, I knew I couldn't let her go solo. With no clear plan on how to fund my trip or secure time off, I decided to join her. Logistics didn't bother me – I just said yes and figured it out as I went along.

**ARRIVING IN UGANDA**

Our UK team – consisting of myself, Andrea and Eboni-Rose (dental technician team), Tashfeen and Emma (clinical team), and Jamie and Euan – landed in Kampala after an eight-and-a-half-hour flight. Our mission to provide dental care to those in need was already in motion, with more than 100 patients booked in, thanks to Nicholas', the Ugandan dentist we worked with, radio advertisements.

Upon arrival, our bags were confiscated, but after a day of negotiations and financial persuasion, we managed to retrieve our materials. When we arrived at Raki General Hospital, we were greeted with the incredible sight of people who had spent the night outside, eagerly awaiting our arrival.

**HIGH PRESSURE**

As soon as our clinical team was prepared, we wasted no time in getting to work, and patients began streaming in. I was amazed at how quickly we all bonded and worked seamlessly together, as if we had been a team for years. Each of us understood the importance of our mission and the tasks at hand. Our days at Raki Hospital were long and emotionally draining, as we faced the pressure of treating as many patients as possible with limited resources. This meant we had to prioritise urgent cases, such as



patients missing front teeth, and particularly women who shared heartbreaking stories like: 'My husband will beat me if I come home without teeth.'

In just four days, we managed to provide over 100 dentures, leaving behind leftover materials and equipment to establish a small lab for continued support in the community.

**UNBELIEVABLE MOMENTS**

Our workspace was located next to the maternity ward, where we witnessed some unbelievable scenes.

Women in labour were often left alone, scared and in tears with no nurses in sight. I even witnessed a caesarean section being performed due to a lack of privacy, which was a sobering experience.

Despite facing challenges like water shortages (they didn't have clean water in



the hospital, or water at all some days – think about that next time you want to complain about the NHS), food shortages, power cuts, lack of sleep and humorous moments like the absence of mirrors in our hotels, the joy we felt from treating patients made it all worthwhile. The cheers, applause, hugs, tears and blessings we received were truly priceless. The happiness and fulfilment I experienced during our time in Raki is beyond words.

**EYE-OPENING JOURNEY**

Our second week in Uganda was filled with unforgettable experiences and meaningful encounters. We kicked off our journey by visiting the Kavumba Children's Centre, home to 80 children in their orphanage and a school for 300 more.

Witnessing Destiny Africa, a children's



# Laboratory



choir, was truly inspiring. Their voices were breathtaking, and there wasn't a dry eye in the room as they sang to us.

Our next stop took us to the Ziwa Rhino and Wildlife Ranch in Gulu, where we were awestruck by the growth of the white rhino population. In Gulu, we also visited a dental clinic where Den-tech is planning to establish a lab. It was eye-opening to learn about the scarcity of labs in Uganda, with most being concentrated in the capital city of Kampala, leaving rural areas underserved.

After a challenging nine-hour drive, we arrived in Jinja, the source of the Nile. Our day was filled with a boat ride on the river and Lake Victoria, followed by an exhilarating quad biking adventure. We concluded the day with a visit to Nicholas' dental practice, where we witnessed the dedication of him and his team. Plans were

put in place to open another lab at their premises and offer a scholarship.

Despite facing travel obstacles, like potholes that will change your radio stations and unlock your doors (I will never complain about the M1 again) and hotel mix-ups, we persevered and reached our final destination in Entebbe.

## MAKING A DIFFERENCE

I want to give a big shoutout to my boss, Phil from Mango Dental, for letting me take a break from the bench for a couple of weeks to lend a hand to those in need. And a huge thanks to Anaxdent USA for sponsoring part of my trip, and to all the awesome people who donated to my Gofundme page. Your support means the world to me, and I couldn't have done this without you all. Thanks a million!

Uganda's beauty and the resilience of its people left a lasting impression on me, highlighting the importance of compassion and gratitude in our daily lives. The saying 'It's Uganda baby!' that our group coined during challenging moments serves as a reminder of the endurance and joy we found in the face of adversity.

Uganda has left an indelible mark on my heart, and I hope it inspires others to embrace compassion and make a difference in the world. [📌](#)

## FIND OUT MORE

about Den-tech at [den-tech.org](https://den-tech.org)

## CONNECT WITH NINA

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# First impressions from a dental technician

**Natasha Appleton** shares how she was inspired to explore dentistry as a child and her future ambitions as a clinical dental technician



## NATASHA APPLETON

Clinical dental technology student,  
University of Central Lancashire

**M**y name is Natasha Appleton, and I am about to start my final year of studying BSc (hons) clinical dental technology at University of Central Lancashire (UCLan) in Preston.

During the first two years, I have mostly been learning about the theory of dental technology and how to fabricate different dental devices. In my third year, I will be starting to see and treat patients within the dental clinic at the Preston Campus, allowing me to gain patient-facing skills and learn the clinical aspect of a treatment plan.

## CHILDHOOD INFLUENCE

From an early age, I have been marvelled by teeth and everything to do with dentistry. My love for the dental world was kickstarted by my own treatment at Manchester University Dental Hospital. During the many appointments I attended, I was able to see multiple specialised teams work together to help me and other children with their complex dental needs while also respecting each individual role within the team.

From this insight, I was inspired to pursue a career in a dental environment, my goal being to be able to assist patients in the same way I had been with my treatment.

Through my research into the profession, I discovered the clinical dental technology course at UCLan. This piqued my interest as I saw that it would allow me to be in a patient-facing role, which I desired, while also being able to enjoy and learn the process behind dental appliances and

their production.

My understanding of the importance of the role of a clinical dental technician (CDT) was furthered when I was able to attend work experience at Sinclair Orthodontics and I got to observe the wide range of work they completed.





# Laboratory



## OVERCOMING DOUBT


During my two years at university, I have had to overcome many challenges such as learning new skills and allowing myself the time to get things wrong and learn from my mistakes. Additionally, there have been times where I have doubted whether I am going into the right profession for me. However, when I get these doubts, I remember the joy I feel when I am able to make these appliances.

Furthermore, I remember the joy my younger self felt back when I received my own orthodontic treatment, and how I would like to provide other people with that same happiness by making them smile.

## LOOKING FORWARD

In the next year, I am excited to start treating patients and using my laboratory skills to assist patients, as well as expanding my skills. Once I have finished university, I hope to start my career within a lab to further my skills and learn new ways of fabricating different dental devices.

If possible, I would also like to gain some experience in a dental clinic soon after I graduate so I can expand my patient skills, as well as to see the wide range of dental needs that are within society.

As I go through the final year of my degree, I am looking forward to expanding my portfolio on Instagram and making connections within the profession to gain additional learning opportunities. 

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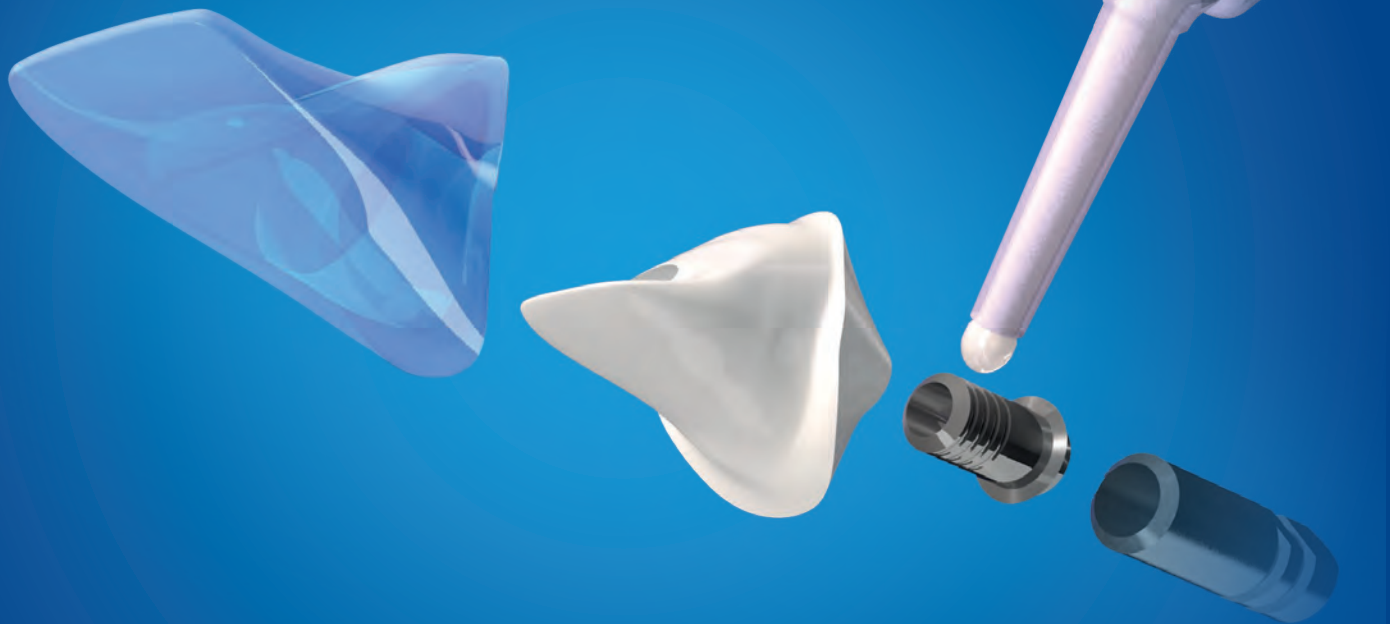
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# A letter to my **younger** self

Chris Golze discusses his journey in dental technology so far and how it has shaped him



**CHRIS GOLZE**  
Owner, XSDental Laboratory

**W**e talk a fair bit these days, me and you. You and me? Me and me? Whatever. It's always the one of us. We usually talk about now stuff, but never really about our journey...

We didn't do great academically, much to the embarrassment of our parents. Their ideas of us becoming a surveyor were smashed by our lack of attention when it comes to exams. We didn't even know what a surveyor did! Never mind – it's just one more thing for them to not be happy with. There will be others, but by then you won't care anymore. But that's another story...

## THE BIG BREAK

We get our big lab break from an ad in the local free paper. Remember us going to the library to look up what a dental technician actually did? After a brief phone call, we got an interview...

What the f\*\*\* were you (yeah you, not me) wearing to that job interview? Grey trousers, shirt and tie with a navy blazer was straight from the career officer's checklist. We took some abuse from work colleagues for that over the years, and rightly so. Don't listen to 'em, kids. Jeans and a t-shirt will do just fine.

We get the job because the other applicant wanted too much money. Never mind, we have had worse put-downs over the years. It turns out we quite enjoy the lab life. It's messy, but working with our hands and being part of a team seems to fit.

However, we soon find that not everybody wants us to progress. Workmates are quite happy for us to remain in the model room for a while, probably because it protects their own interests. College is never an option for you. It's around this time you'll



start to learn that people can be quite manipulative. Even though they will make out that they have your best interests in mind, later years will prove they don't.

## MONEY STRUGGLES

I know money is tight for you. Now there is six in the house and you're going to have to bend the rules to put food on the table and keep the lights on at home. You won't be proud of doing these things, but I'm proud of you for doing what needs to be done to keep food in bellies and the house warm. Others won't understand that, but they have the safety net of family to help when required.

## PLODDING ALONG

After a few more years of plodding along, you get the opportunity to purchase the lab! Being self-employed is a no-brainer here. The number being asked is less than the equipment is worth. You have to remortgage to get your share of the money, but as one of the minimum wage brothers, we really don't have much to lose.

Again, we plod along. Small staff numbers come and go. We're a small lab and even though you have some ambition, it appears colleagues aren't on the same page. The money is better, so that's ok – folk are entitled to their own path. But so are we, and what we are

trying to make happen doesn't need to be belittled or brushed aside. Family members move into the business, and it soon becomes apparent that what was agreed beforehand from others doesn't apply any longer. Again, that's fine. Situations change and so too do people.

**MINDSET CHANGES**

We changed too... We're making friends in the industry outside of the lab. That bubble of jealousy and complaining that the world is against us popped. You see what's out there, that we can stand up for ourselves and not be bullied by large corporations.

Work colleagues won't share your view. We stop being pushed around in our own business and skipping over the mess, and we find ourselves out on our own. Freedom! That feeling we should have had in 2008 when we first became self-employed.

**DO NOT COMPROMISE**

That feeling of being shackled is no longer there. You always did your own work the way you wanted to, but now the business is free of outside influence, you don't have to answer to anybody. Looking back, there are instances of people trying to stop you, or others trying to get you cheap on the sly, and there will be manipulative people trying to convince you that working with them is a good idea. The media, other labs, suppliers, folk who just want to use you for their own end.

Stick to your guns, no compromise, no sell-out. It might not bring the financial rewards, but you will be able to look yourself in the eye every morning knowing you didn't bend. Again, I'm proud of you for that.

We now have a small but close group of friends and business colleagues in the industry; people who genuinely want the best for us, who push us, who want us to succeed. I think of the saying: 'People who want to see you win, will help you win.' Surrounding yourself with the right people is vital. A group of friends who want to see you do well without any personal motive. You will eventually have these people around and cherish them.

**IT'S ALL WORTH IT**

You're doing ok. The hard times will be worth it; we learn a lot from those lessons. We still love the job after 30 years, so there is no need to worry about the passion. There are still the haters, the fakes and the



snakes, but you will learn to see who they are pretty much straight away. What also comes with that experience is you will find the ambitious, the friends, the helpful, the genuine, the loyal and those who have confidence in you.

It's a career that will test you. You're not a fighting man, but there will be times you want to knock people's teeth out, times you want to put people on blast. But then

they wouldn't let you do your job anymore. Thankfully, we have a little self-control... Financially, it's hard to justify the effort. Creatively, it most definitely is. We love the job.

Has it been worth it? F\*\*\*, yeah.

CONNECT WITH CHRIS

@xslabtech





# Enlightenment through illumination"

**Klaus Mütterthies**, Dental Artist  
and Author about the new

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# Making onboarding simple

Eleanor Pittard explains how to make onboarding new employees structured and successful



## ELEANOR PITTARD

Co-director and owner of  
Hive Dental Laboratory

Onboarding new employees is crucial; everyone has to go through the process, but how it is structured can help to set the tone for their experience within your laboratory. A well-structured onboarding programme can enhance employee engagement, foster a culture of inclusivity and support, and ultimately lead to improved patient care.

### ENSURING FAIR INTERVIEWS

First things first, fair interviews are essential in attracting diverse talent and creating a positive workplace culture.

1. Standardise interview questions: develop a set of standardised questions that align with the job description. This ensures that all candidates are evaluated based on the same criteria
2. Diverse interview panels: involve a diverse group of interviewers to minimise biases. Different perspectives can help assess candidates more holistically
3. Training for interviewers: provide training on unconscious bias and fair interviewing practices. This can help interviewers recognise their biases and focus on the competencies required for the job
4. Structured rating system: use a structured rating system to evaluate candidates. This quantifiable approach helps in making objective hiring decisions
5. Candidate experience: create a welcoming environment for candidates. Clear communication and respectful treatment during the interview process can enhance your clinic/lab's image and attract top talent.

A warm welcome can make a significant difference

### USEFUL TIPS

So, you have found the right person and now they are about to start their employment. But how do you prepare? Before they start, spend some time preparing their workspace, necessary equipment, and access to digital systems. A warm welcome can make a significant difference.

1. Assign a mentor: pair the new employee with a seasoned staff member who can guide them through their initial days. This relationship provides a support system
2. Set clear expectations: clearly outline job responsibilities, performance standards, and any specific training requirements. Transparency helps new employees align with your goals
3. Encourage questions: create an open-door policy where new hires feel comfortable asking questions. This will foster a trusting environment and encourage learning
4. Regular check-ins: schedule regular check-ins to discuss progress, address concerns and provide feedback. This shows that you value their input and are invested in their growth.

### NEW EMPLOYEE CHECKLIST

Hiring someone new can be a whirlwind. Before you know it, they have started and already completed their first week, and you haven't had a chance to check in or get the right paperwork completed. So, here's a quick checklist to make sure you get the essentials in place.

#### First day checklist

- Welcome and introduction: meet with the team and introduce the new hire
- Workspace setup: ensure their workspace is equipped with necessary tools and materials
- IT and system access: assist them in setting up email accounts, electronic health record systems, and any other software
- Orientation session: conduct an orientation

covering policies, procedures, and culture

- Emergency procedures: review safety protocols and emergency procedures.
- #### First week checklist
- Training sessions: schedule training on specific tasks and responsibilities
  - Meet with key personnel: arrange meetings with team leads and key staff
  - Feedback loops: encourage the new hire to share their experiences and concerns
  - Review policies: go over protocols, standards and compliance guidelines
  - Social integration: organise informal gatherings to help the new employee bond with the team.

#### First check-in meeting with manager

Once the first week has finished and your new team member has settled in (about a month in), it can be a good idea to have a longer check-in meeting. It's essential to cover the following topics:

1. Performance review: discuss initial observations and provide constructive feedback on their performance so far
2. Goal setting: set short-term and long-term goals together, ensuring they align with your objectives
3. Addressing concerns: provide a platform for the new hire to voice any concerns or challenges they may be facing
4. Professional development: discuss opportunities for further training and development
5. Cultural fit: engage in a conversation about their experience with your culture and any suggestions they might have for improvement.

Hopefully this gives you a useful and actionable checklist to help streamline your onboarding process. [L](#)

CONNECT WITH  
ELEANOR

@eleanor.pittard

# Christmas in the lab

Lab owners reveal how they navigate December deadlines, plan for Christmas closures, and ensure their teams feel appreciated during the festive season

## EMILY PITTARD, HIVE DENTAL LABORATORY

If it were up to Ella and I, we would be playing Christmas music and have the lab kitted out like Santa's grotto in November, but we know we are in the minority with that preference! So instead, we pick a day in early December to have some Christmas nibbles, drinks and music while team members dress the lab as Christmassy as they would like.

We try and maintain our standard turnaround times despite the 'please can we have this before Christmas' on the 20 December. This is for everyone's sanity.

We are also trying something new this year in which we allow people to work a little later in the lead up to Christmas to gather time in lieu, so they do not have to come in on Christmas Eve. The lab stays closed between Christmas and new year, and as a Christmas gift, we give the team the first working day off as paid holiday. We find this usually welcomes back a more energised and happier team.

Both myself and Eleanor come in on that day to receive impressions and prepare the diaries for the following week.

It is a time of year when there's a lot of home-life added pressure. This is why we try and be mindful of our team's 'stress cups'. Are they too full? What can we do to help? What can they do to help? We find a mixture of the above helps us stay afloat over the Christmas period.



## ASHLEY BYRNE, BYRNES DENTAL LABORATORY

Our Christmas celebrations are the perfect example of our 'work hard, play hard' ethos. The first step is always setting the date for our much-anticipated Christmas party – and what a party it is! Held in a charming village hall equipped with a professional-grade kitchen, we take over the space for a few days to create an unforgettable experience. Thanks to a talented team of hospitality friends, we enjoy a bespoke event, complete with a professional chef. It's our way of saying a big thank you to our hardworking team.

One of the highlights is the infamous Byrnes annual quiz, complete with a picture round that always sparks a competitive spirit! For the more adventurous team members, the party continues at my house with an impromptu after-party. More drinks flow, the music keeps playing, and we often end up watching the sunrise!

We're fortunate to receive generous gifts from clients and suppliers, many of which are addressed to me as the lab owner. However, Byrnes wouldn't be what it is without the incredible team, so we host our now-legendary raffle. We lay out all the gifts, and while we try to keep things balanced, there's always that one special item – like a bottle of gin – that makes the raffle extra exciting.

Byrnes Dental Laboratory shuts down completely over Christmas, giving everyone a well-deserved break. We run a skeleton team on the final day of the year and the first day of the new year, ensuring that everyone gets a solid two-week holiday. It's a time for rest and relaxation, so the team can recharge and return with fresh energy for the year ahead.

## SHOBHNA PATEL, TURNER DENTAL LAB

I give three months' notice in advance for Christmas holidays so clients have plenty of time to schedule their patients and have no excuses to make. We are closed from 19 December and reopen on 6 January.

Over the years, I have stopped working long hours before the holidays and have learned to simply say 'no'. They have to follow the working days, and they can wait for when the lab opens in the new year. If the patient had time all year through to have the dentures made but left it last minute to get them done two weeks before Christmas, they can wait a little extra until we reopen.

We have to look after ourselves, mentally and physically. The dentists and patients are never going to come and look after us. So, put yourself first where you have to. If you feel like you need to close down for two weeks during Christmas and take a good, solid break from work, then do it. If you want to keep working, running after money, being scared of losing clients if you take long break etc, then it's your own choice.

Actually, I would say Christmas is the best time to take a good break as most surgeries slow down with work and many dentists are off work too.





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# Unwrapping Christmas bonus tax

Planning to give your employees a Christmas bonus? **Matt Everatt** shares the tax implications involved



## MATT EVERATT

Editor-in-chief, *Laboratory* and director, S4S Dental Laboratory

As the festive season approaches, many employees might find themselves hoping for a Christmas bonus or gift from their employer. If you're a lab owner, you might be thinking of how to reward your team in the most tax-efficient way. But, as with most things in the world of taxes, giving and receiving gifts can come with some strings attached.

## TAX IMPLICATIONS

When rewarding your employees with Christmas bonuses, there are certain tax, national insurance contributions (NIC) and reporting obligations you must follow as an employer. These obligations depend on whether you give cash bonuses or goods (gifts), or gifts that can be resold for cash.

You may need to report Christmas bonuses to HM Revenue and Customs (HMRC) and ensure that tax and NIC are correctly deducted.

## CASH BONUSES

If you give your employees a cash bonus for Christmas, this counts as earnings.

Therefore, you must:

- Add the value of the bonus to your employee's total earnings
- Deduct and pay PAYE (pay as you earn) tax and class 1 national insurance via payroll.

## GOODS (NON-CASH GIFTS)

If you give non-cash gifts that don't qualify as 'trivial benefits', you must:

- Report them on form P11D
- Pay class 1A national insurance on the value of the benefit.

## TRIVIAL BENEFITS EXEMPTION

You won't need to pay tax or national insurance on certain benefits, provided they meet all of the following criteria:

- The cost of the benefit is £50 or less
- It isn't cash or a cash voucher
- It's not a reward for work or performance
- It's not given as part of the employee's contract.

This is known as a 'trivial benefit'. If the benefit meets these conditions, there's no need to report it to HMRC, and no tax or national insurance is due.

## RECEIVING GIFTS FROM SUPPLIERS OR CUSTOMERS


In the spirit of the season, you might also receive gifts from suppliers or customers. But even here, the taxman can get involved. Receiving gifts from third parties can create tax complications, depending on the value and nature of the gift. Like the rule for giving gifts, if you receive a gift from a supplier that's worth £50 or less, and is not cash or a cash voucher, it's generally considered trivial and may not need to be reported to HMRC.

For gifts that exceed £50 in value, or are given in a way that could be seen as part of a business relationship, this could be seen as a taxable benefit. For example, a luxury hamper or expensive bottle of champagne from a supplier could count as a benefit in kind and may need to be reported to HMRC. You could also be liable for tax on these items, depending on their value.

Employers should be cautious when accepting gifts of a significant value as they can lead to an uncomfortable situation with HMRC and raise questions about potential conflicts of interest.

## UK TAX RULES FOR 2024

As of 2024, the tax rules surrounding bonuses and benefits in kind remain largely the same. Cash bonuses are fully taxable and subject to national insurance, and the trivial benefit exemption continues to apply to non-cash gifts under £50. However, always stay updated with HMRC guidance to ensure compliance and avoid any festive surprises!

Whether you're rewarding employees or receiving gifts from suppliers, it's wise to check the latest tax rules or consult a tax adviser. After all, we want to spread Christmas cheer without accidentally inviting a financial 'bah humbug' from HMRC. 



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# 'Die Zirkonzahn Schule' – heroes of dental technology

Zirkonzahn shares the courses and schools available for dental technicians and dentists in the heart of the Italian Alps

**'D**ie Zirkonzahn Schule' (the Zirkonzahn School) is a training programme that combines dental technical teaching with a school of life and culture. The Zirkonzahn School offers both courses and schools for all walks of life: it aims to support both young and experienced dental technicians in making personal and professional growth, by means of a diligent and complete education which focuses on craftsmanship techniques and digital technology. The educational programme has been conceived thoroughly by the creative mind of Enrico Steger, master dental technical, pioneer of dental technology and founder of the worldwide dental technology company Zirkonzahn (South Tyrol, Italy). According to Steger's belief that 'learning means repeating', excellent results only arise from an ongoing and self-motivated pursuit of improvements, as well as from a constant exercise.

All Zirkonzahn Schools take place in the meadows of the company's homeland, South Tyrol, embraced by the magnificent Alps, and all classes are held by expert dental technicians trained in-house. The six schools included in the programme have been conceived considering the specific and differentiated targets' needs. They last from five days to several months and, in some cases, they are run in an international ambiance:

- **Military School** – the most traditional five-day training offered to the young, focused on the concept of discipline and for this reason, characterised by a military orientation: after getting up early, morning exercises and working tasks are performed following a strict and well-planned schedule with a diligent attitude. In the evening, there is still no time for rest: adventurous dental, technical and personal challenges still await the young participants!
- **Ranger School** – in a period of three to six months, enthusiastic, committed and ambitious young technicians can broaden their knowledge on digital workflow,



Never stop learning! Master innovative techniques and new technologies: attend our schools in the Aurina Valley (Italy) or take part in one of the courses scheduled in our education centres in South Tyrol and worldwide

aesthetic design and latest innovative dental solutions. But the Ranger School is not only homework and workshops: alongside the strict schedule, adventurous and cultural activities await the students, bringing the rangers face to face with their own limits. Hence, 'Climb the mountain', is the Ranger School's motto!

- **Forest School** – located in a rustic farmhouse, the Forest School welcomes experienced dental technicians for five days. In close contact with nature and tradition – without smartphones, radio or television – participants look after themselves, hike, experience the community, and concentrate on prosthetics and digital workflow, putting into practice all content learnt
- **Safari School** – a journey through our homeland and an immersion in the handicraft work: this is what awaits the experienced dental technicians for five days. In a spartan and extravagant accommodation, they will engage in morning sports, different group activities and innovative patient diagnostic approaches as well as layering techniques
- **Mountain Monastery** – the mystical atmosphere of the Mountain Monastery unlocks people's hidden talents, bringing out the best. In the contemplative silence, thoughts are the only distraction granted,

providing mental access to unusual solutions and bringing to light what a person really wants. During seven days of training, the seven participants not only refine professional skills, but also deal with the psychological factors that lead people to success

- **Heldencampus** – a special training conceived and tailor-made for the excellences of dental technology. Participants can take part in the Heldencampus only upon personal invitation by Enrico Steger. Designed as a minimal place to maintain a high level of concentration, this five-day training is mostly dedicated to the concept of refinement: precision, attention to detail, aesthetic appearance, cleanliness, work presentation and packaging, tool maintenance and workflow are the main topics discussed during the course.

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# Removing the guesswork

Norbert Wichnalek, Lukas Wichnalek, Patricia Strimb and Arbnor Saraci present a removable partial denture case highlighting how custom-fit prosthetic components and a digital workflow can create a precise result



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Dental technician,  
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Manually adjusting denture teeth to a model casting framework is tedious work that does not allow for true precision. There is a fair amount of guesswork involved as it is ground out until it fits, and often more of the basal tooth is sacrificed than would have been necessary. With the digital workflow, innovative materials for removable partial dentures, which now enable custom-fit prosthetic components based on the lock-and-key principle, have been introduced. These only need to be bonded together using modern adhesive systems. This means that high-precision production technology is replacing the guesswork of manual grinding.

This article will discuss how a polychromatic MRP (microfiller reinforced polymer matrix) composite disc can be used to create precision-fit premium teeth in a digital workflow, and the advantages this offers.

**A ROUTINE CASE**

A patient in his early 60s presented at a dental practice for a routine visit. The UR7, UL6 and UL7 teeth were missing in his upper jaw (Figure 1). Due to the free-end situation, mastication was limited. The patient also

wanted the situation to be stabilised so that he could later be fitted with fixed implants. The dentures needed to be as inconspicuous as possible, as comfortable as possible and not too expensive.

The decision was made to use a clasp denture with a PEEK plastic framework in order to avoid exposing any metal clasps, and to offer the desired level of comfort, thanks to its low weight. The tooth material on the denture saddles was to be milled out of the Vita Vionic Dent Disc Multicolor in shade A3 with a precise fit. As with the Vita teeth, the polychromatic disc is based on the same MRP composite formulation, ensuring high abrasion resistance and a long service life.

The shade gradient integrated into the composite crown provides a basic natural appearance, which is why the material is ideal for use in the anterior region.

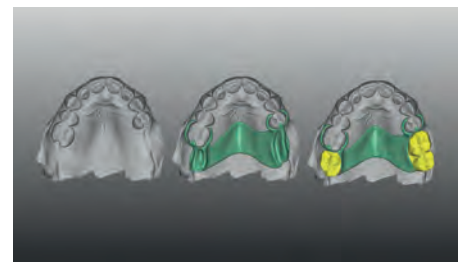
**OPTIMUM ADHESIVE GAP AND INDIVIDUAL OCCLUSION**

After the intraoral scan of the dental arches and the habitual final bite position, the prosthetic components were designed to fit together precisely in the Exocad software (Figure 2). The framework structure was designed using Juvora Dental Peek (Figure 3). The precision-fit tooth material then followed on the saddles, with the saddle base being incorporated into the design. The UL6 and UL7 teeth were also given an interlocking design, and the adhesive gap was kept even and as small as possible to ensure the greatest possible stability (Figure 4).

If the adhesive gap is too small, the bond will be weaker; if the adhesive gap is too large and inhomogeneous, this can result in chipping (Figures 5 and 6). It was possible to functionally design the occlusion to match the natural opposing dentition. Both prosthetic components were then fabricated one after the other in the Imes-icore 350i Pro milling unit with CAD/CAM support.



**FIGURE 1:** The initial situation with the missing UR7, UL6 and UL7 teeth



**FIGURE 2:** The design of the denture components in the Exocad software



**FIGURE 3:** The framework of the partial denture was fabricated from PEEK plastic, supported by CAD/CAM



**FIGURE 4:** The UL6 and UL7 were produced with the basal parts interlocked





**FIGURES 5 and 6:** The resulting excess material clearly shows the homogeneous adhesive gap



**FIGURE 7:** Conditioning of the adhesive surfaces by sandblasting with 50µm aluminium oxide



**FIGURE 8:** Application of light-curing composite to the dental adhesive surfaces



**FIGURE 9:** The saddles were also coated with the tooth-coloured composite material



**FIGURE 10:** Occlusal view of the finished partial denture



**FIGURE 11:** Vestibular view of the clasp denture in occlusion



**FIGURE 12:** Lateral view of the finished partial denture



**FIGURE 13:** Occlusal view of the integrated partial denture

## ELABORATION AND BONDING

The tooth material was finished and the micromorphology determined using standard grinding tools. This was followed by a simple pre-polishing using the Vita Enamic Polishing Set Technical and a short high-gloss polishing using Vita Polish Hybrid, as well as a brush with goat hair bristles and a leather buff. The basal adhesive surfaces of the prepared tooth material and the complete saddles made of PEEK plastic were first cleaned and conditioned in a vacuum plasma chamber – normal practice in our laboratory – using oxygen and argon as the ignition gas.

Afterwards, conditioning was done with 50µm aluminium oxide and the universal Vita Vm Lc Primer (Figure 7). This was followed by controlled adhesive cementation of the denture components using the flowable and light-curing composite Vita Vm Lc Flow Base Dentine in A3 (Figures 8 and 9).

## GINGIVAL REPRODUCTION

The basal, vestibular and oral parts of the saddle were completed with cold-curing resin. After sandblasting again with 50µm aluminium oxide and conditioning the base

with the Vita Vm Lc Primer, deeper blood vessels in the area of the mobile gingiva and in the interdental areas were established with the light-curing composite stain Vita Akzent Lc Effect Stains in dark red.

After suitable fixation with the polymerisation light, Vita Vm Lc Flow Gingiva 4 (brown-red) was used to create a thinly tapering mucosa, which also created a fine, definitive gingival margin around the teeth in the vestibular area, which was no longer subtractive as it progressed. After 90 seconds of intermediate curing, cervical and interdental contouring was performed with Gingiva 1 (dusky pink).

## CHARACTERISATION AND FINISHING

The palatal tooth and base areas were not individualised gingivally. To prevent an oxygen inhibition layer, final curing was carried out in 180 seconds using the Otofash G171 polymerisation device in a wavelength range of 280-580nm under an inert gas device with nitrogen. The entire saddle area was then washed off, sandblasted with 50µm aluminium oxide, and the tooth material in the fissures was interdentally characterised with the composite stains Vita Akzent Lc Effect Stains

russet and khaki. Finally, a uniform gloss level was established with a wafer-thin application of Vita Akzent Lc Glaze. After another 90-second curing period – as described above – the high-gloss polish was applied with a cotton buff using light pressure.

## DISCUSSION AND CONCLUSION

The polychromatic MRP composite disc made it possible to create removable prosthetics with premium teeth from the disc individually, and as required. Only the dental material that is needed is produced with CAD/CAM support. The 'guesswork' involved in the tedious and time-consuming process of grinding out prefabricated teeth is a thing of the past. The ability to fabricate interlocking and integrate parts of the base into the tooth material provides maximum durability.

The optimised design of the adhesive gap also ensures stability and a reliable bond. It also offers an inherently natural appearance, meaning that finishing and polishing are usually all it takes to achieve the desired aesthetic effect (Figures 10 to 13). The basic shade accuracy of the composite provides true added value for fabricating removable partial dentures reliably and efficiently. **L**

# Pumice problems

Alistair Mayoh discusses the importance of infection control in the laboratory



**ALISTAIR MAYOH**  
Marketing director,  
Kemdent

**P**umice slurries are one apparatus within the laboratory that can harbour a significant volume of bacteria. International studies have cited contamination rates as high as 66.7%, or even 100% in one assessment of 20 randomly selected slurries.

## CONTAMINATION SOURCES

One study found that 60% of assessed prostheses delivered to dental laboratories were contaminated with pathogenic microorganisms native to the oral cavity of patients. This creates the potential for the pumice slurries to be contaminated with such bacteria, posing risks to technicians and other patients.

The differentiation of these contaminants tells us that the microorganisms may come from both items that have been sent from a practice after intraoral placement/use, as well as microorganisms encountered through the transportation and treatment process.

If used restorations are not disinfected by either the dentist or the dental technician, its introduction to the pumice slurry heightens the risk of contamination for subsequently treated items. For this reason, all prostheses received in a laboratory should be disinfected prior to being worked on by a dental technician. A pumice slurry may also be contaminated through the actions of the technician or from objects in the surrounding environment if they are not managed properly.

## MINIMISING RISK

Clinicians should minimise the presence of harmful microorganisms within a pumice

slurry by introducing an effective disinfectant. This is recommended in the literature, as is the daily changing of a pumice solution – if not more frequently. Lathe brushes, rag wheels and other laboratory tools should also be cleaned and sterilised daily.

The Pumicesafe Universal Cleaner from Kemdent is an effective solution for every dental laboratory. The algacidal, fungicidal cleaner is an optimal application for pumice slurries, creating a pleasant smelling and microorganism-free solution. This reduces dust in the laboratory environment, and simply minimises the risk of cross contamination. It can also be used as a tabletop surface cleaner, to help every element of the laboratory. **L**

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## Representing dental implant professionals across the country

ADI



Representation of an organisation's membership is essential for ensuring that everyone's voices are heard. This is particularly important in work and educational settings, as those making decisions will have an impact on the experience of all. The Association of Dental Implantology (ADI) board is composed of a nationally elected body of dentists, dental care professionals and dental technicians.

Members of the board volunteer their time to meet regularly to develop and implement a strategy for the ADI. It consists of clinicians from across the UK who offer insights and experiences to ensure diversity in decision making, and representation of the association's membership.

The recent ADI trustee elections have resulted in the following board members, set to serve for the next three years:

- Linzy Baker, dental care professional rep
- Kristina Vaitelyte, technical rep
- Abdulwahab Zidan, regional rep for east central England
- Kareem Siddiqui, regional rep for north east England
- Amit Mistry, regional rep for north west England
- Joanna Sutcliffe, regional rep for south west England
- Kasia Gurzawska-Comis, academic/ education rep
- Faresh Desai, regional rep for west central England
- Manraj Kalsi, regional rep for south east England
- Fiona McKillop, regional rep for London
- Leanne Branton, regional rep for Scotland
- Raid Ali, regional rep for Wales
- Andrew Little, regional rep for Northern Ireland.

[www.adi.org.uk](http://www.adi.org.uk)

## Exciting GC lab scanner partnership with Skillbond GC

GC is thrilled to announce a new and exciting partnership with Skillbond to retail GC's Aadv Lab Scanner 3 (ALS3) – a next-generation scanner that combines an unparalleled user experience with the speed, precision, flexibility and safety essential to a CAD/CAM workflow.

The ALS3's advanced technology offers:

- Gesture control via patented projection technology
- Angulated twin cameras set-up with high-speed engines, to maximise scan coverage and capture hard-to-access areas
- Fully automated object recognition
- Hybrid scan technology – automatically matches impression and model scans

- Smart occlusion – automatically guides digital models into occlusion.

Talk to your GC product specialist, who will be happy to discuss your needs, provide product information and share details of how you can add an ALS3 to your laboratory via rental/ownership.

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## Zirkonzahn's Prettau zirconia line

Zirkonzahn

Without zirconia there would be no Zirkonzahn. What began 15 years ago with Prettau – Zirkonzahn's first zirconia – has grown over time into a material line consisting of six different types of Prettau zirconia.

- With a very wide range of applications – from partial crowns to full arches – Prettau is the ideal zirconia for solving common problems such as narrow spaces, bruxism or ceramic chipping, providing patients with functional and aesthetic restorations
- Prettau 2 and Prettau 2 Dispersive are highly translucent zirconia typologies with excellent flexural strength. Furthermore, their outstanding aesthetic properties allow the design of monolithic restorations, preventing the risk of ceramic chipping. With Prettau 2 and Prettau 2 Dispersive, it is therefore possible to provide patients with biocompatible, individual and highly stable dental restorations, from single crowns to full arches. Compared to Prettau 2, the dispersive typology is already provided with a slight natural colour gradient during the production process
- With the new Prettau 3 Dispersive zirconia, the concept of gradual-triplex-technology was introduced: the material is already provided with colour, translucency, and flexural strength gradients during the production process. This ensures a highly translucent incisal edge and an extremely high flexural strength at the tooth neck.

Prettau 3 Dispersive is particularly suitable for monolithically designed restorations and can be used for the production of single crowns up to bar-supported multi-unit bridges

- Prettau 4 Anterior and Prettau 4 Anterior Dispersive have been specially designed for the anterior region and are therefore characterised by a particularly high translucency. However, both materials are also perfectly suited for the posterior region. The Dispersive version features a natural colour gradient evenly distributed throughout the material for a dispersive effect. These two types of zirconia are suitable for the production of single crowns, inlays, onlays, veneers and three-unit bridges.

For a final result that matches with the colour of the patient's natural teeth, special shade guides were developed: Zirkonzahn Shade Guides are composed of monolithic zirconia sample teeth in the shape of premolars, upper and lower incisors, and they are available in Prettau 2 Dispersive, Prettau 3 Dispersive and Prettau 4 Anterior Dispersive zirconia.

[www.zirkonzahn.com](http://www.zirkonzahn.com)



# Enhanced CPD

## LAB/NOV/DEC/WARD/PAGE 12

### 1. How old was the patient in this case study?

- a. 62 years old
- b. 67 years old
- c. 74 years old
- d. 79 years old

### 2. The patient's initial lower chrome was aided by an implant in which tooth position?

- a. LR2
- b. LR3
- c. LL2
- d. LL3

### 3. Why did the authors decide on a pattern resin try-in?

- a. To give the patient an overall feel of the prosthesis
- b. To manage the patient's expectations
- c. To ensure the accuracy in the model
- d. All of the above

### 4. For the altered cast technique in this case, at what distance from the tooth was the secondary model sectioned?

- a. 0-1mm
- b. 1-2mm
- c. 2-3mm
- d. 3-4mm

## LAB/NOV/DEC/BROUGHTON/PAGE 16

### 1. How old was the patient in this case?

- a. 66 years old
- b. 67 years old
- c. 68 years old
- d. 72 years old

### 2. Why did the patient in this case choose immediate dentures over implants?

- a. Cost implications
- b. Aesthetic
- c. Retentive factors
- d. None of the above

### 3. How many teeth were extracted under local anaesthetic in this case?

- a. Nine
- b. 11
- c. 13
- d. 15

### 4. According to the author, the pontic should be approximately the same shape as the root of the tooth to be extracted, though only extended apically by how much?

- a. 1mm
- b. 1.5mm
- c. 2.5mm
- d. 3mm



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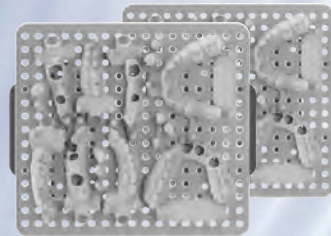



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