European Association of Dental Implantologists
Bundesverband der implantologisch tätigen Zahnärzte in Europa e.V.

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EDI JOURNAL

European Journal for Dental Implantologists

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1 McGuire MK, et al.; J Periodontol. 2022 Mar;93(3):333-342.

Nothing is more constant than change

Almost 40 years after its scientific recognition, oral implantology has reached a high technical and scientific level. Now the profession is increasingly looking beyond the implantological horizon. How can peri-implantitis be controlled? When and where should preventive measures be taken? How do practitioners deal with the ongoing "epidemic" of periodontitis when—as in Germany—changes in the legal framework make systematic long-term treatment no longer economically viable?

The BDIZ EDI has launched the interdisciplinary training series "Implantology step by step", which presents the current state of the art in practical oral implantology. The pilot webinar by Prof. Christof Dörfer helps to better understand how the various processes in the human body are intertwined. The dentist's domain is by no means limited to the oral cavity. Dentists are immersed in the workings of the whole organism and its complex physiological and chemical relationships. Oral and systemic diseases interact closely. We intend to share the take-home messages from the webinar with all readers of the *EDI Journal* in the form of an interview in the next issue.

Demographics is the topic of the second pilot webinar with Dr Markus Tröltzsch, who shows that demographic change is having a significant impact on implant dentistry and that this is leading to changes in practice orientation.—A worthy start to the training series, with two forward-looking topics that we are also working on for the *EDI Journal*.

In this issue we would like to draw your attention to a number of innovations. There is a new implant pass from the BDIZ EDI, which is much better suited to the needs of practices than the previous one. We will include a copy in the next issue and offer all readers of the *EDI Journal* the opportunity to print this implant passport.

The entire "corporate design" of the BDIZ EDI, the face it presents to the outside world, has also been refreshed after remaining largely constant for 30 years. Take a closer look at the cover: the BDIZ EDI logo now features an implant instead of a tooth. The distinctive European stars have been retained for reasons of recognition but have been graphically revised. All members are welcome to request the logo as a file for you to use on your website to promote your membership.

These are, of course, only a few aspects of the overall work of the BDIZ EDI. What we have achieved in 2022 and 2023 is documented in our report on the General Meeting in Kiel, where the board gave an account of its activities. The association has covered a great deal of ground—the annual guidelines for practitioners, an implant brochure for patients, the initiative to file a lawsuit against the German Standard Schedule of Fees for Dentists (GOZ) with the Administrative Court in Berlin, the Conference of Experts on Implantology convened on behalf of the Consensus Conference on Oral Implantology, participation in the development of industry-wide guidelines, webinar offers, curricula and expert symposia.

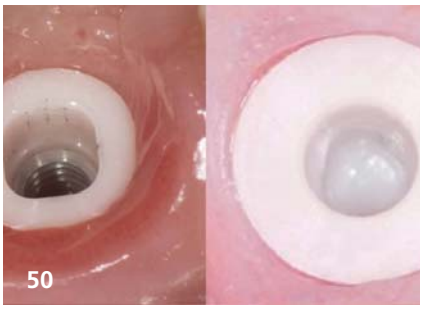
You can read about them all in this issue of the *EDI Journal*.

Best regards,

Anita Wuttke, Editor-in-Chief

Guidelines and their functions

32nd Expert Symposium on Regenerative Procedures in Dentistry



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Soft tissue augmentation

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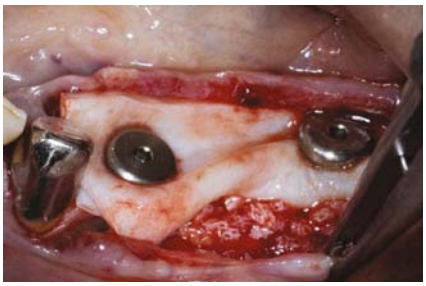
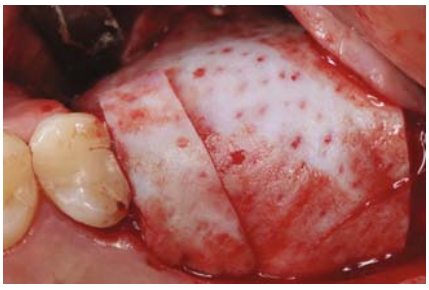
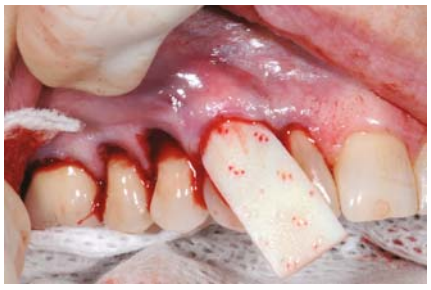


Ridge reconstruction



Gingival augmentation



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References available at: www.biohorizonscamlog.com/references_novomatrix

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Partner Organizations of BDIZ EDI

Association of Dental Implantology UK (ADI UK)

ADI UK, founded in 1987, is a registered charity committed to improving the standards of implant dentistry by providing continuing education and ensuring scientific research. It is a membership-focused organisation dedicated to providing the dental profession with continuing education, and the public with a greater understanding of the benefits of dental implant treatment. Membership of the ADI is open to the whole dental team and industry, and offers a wealth of benefits, education and support for anyone wishing to start out or develop further in the field of dental implantology.

Ogolnopolskie Stowarzyszenie Implantologii Stomatologicznej (OSIS EDI)

OSIS EDI, founded in 1992, is a university-based organisation of Polish scientific implantological associations that joined forces to form OSIS. The mission of OSIS EDI is to increase implant patients' comfort and quality of life by promoting the state-of-the-art and high standards of treatment among dental professionals. OSIS EDI offers a postgraduate education in dental implantology leading to receiving a Certificate of Skills (Certy kat Umiejetnosci OSIS), which over 130 dental implantologists have already been awarded.

Sociedad Espanola de Implantes (SEI)

SEI is the oldest society for oral implantology in Europe. The pioneer work started in 1959 with great expectations. The concept of the founding fathers had been a bold one at the time, although a preliminary form of implantology had existed both in Spain and Italy for some time. Today, what was started by those visionaries has become a centrepiece of dentistry in Spain. SEI is the society of reference for all those who practice implantology in Spain and has been throughout the 50 years, during which the practice has been promoted and defended whereas many other societies had jumped on the bandwagon. In 2009 SEI celebrated its 50th anniversary and the board is still emphasizing the importance of cooperating with other recognised and renowned professional societies and associations throughout Europe.

Sociedade Portuguesa de Cirurgia Oral (SPCO)

The SPCO's first international activity was the foundation—together with their counterparts in France, Italy, Spain and Germany—of the European Federation of Oral Surgery (EFOOS) in 1999. The Sociedade Portuguesa de Cirurgia Oral's primary objective is the promotion of medical knowledge in the field of oral surgery and the training of its members.

Udruženje Stomatologa Implantologa Srbije-EDI (USSI EDI)

USSI EDI was founded in 2010 with the desire to enhance dentists' knowledge of dental implants, as well as to provide the highest quality of continuing education in dentistry. The most important aims of the organisation are to make postgraduate studies meeting the standards of the European Union available to dentists from Serbia and the region; to raise the level of education in the field of oral implantology; to develop forensic practice in implantology; and to cooperate with countries in the region striving to achieve similar goals.

EDI of Macedonia

The Association is Albanian Implantology Association of Macedonia—AIAM was founded in 2013 as a branch of Albanian Dental Society of Macedonia. The association was created to advance education in the field of dental implantology for the benefit of the population. The objectives of the association are:

– To promote the progress of education, research and development of dental implantology in Macedonia
– To encourage postgraduate education, study and research in dental implantology through:
  - Appointment of meetings, lectures, seminars and courses either individually or with others
  - Encouraging the publication of dental implantology articles!
  - To cooperate and make agreements with relevant, national, local, foreign and different institutions.

In 2017, AIAM & MAOS (Macedonian Association of Oral Surgeons) became EDI of Macedonia and signed a Cooperation Agreement with BDIZ EDI to cooperate in dental implantology!

Scientific Board

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ONLINE TRAINING SERIES

IMPLANTOLOGIE STEP BY STEP

with Prof. Johannes Einwag

BDIZ EDI

Two free webinars to start

13.06. **ORAL HEALTH AND GENERAL HEALTH**
Prof. Christof Dörfer

27.06. **DEMOGRAPHICS: HOW IS IMPLANTOLOGY CHANGING?**
Dr Markus Tröltzsch

26.09. **PLANNING** Dr Dirk Heering
Implant and patient selection for your prosthetic cases

10.10. **PREPARATION** Dr Ali-Reza Ketabi
From extraction (socket and ridge preservation) to gingiva formers and drilling templates

24.10. **IMPLANT PLACEMENT** Dr Markus Tröltzsch
Bone grafting versus short, angulated and/or reduced-diameter implants

07.11. **PROVISONALISATION** Horst Dieterich
Provisionals as an alternative to immediate dentures

21.11. **PROTHETICS** Prof. Johann Müller
Does the occlusion concept change with the number and positions of implants?

05.12. **ORTHODONTICS** Dr Kathrin Becker **Implants as retention elements in orthodontics**

19.12. **BILLING FOR THESE TREATMENTS**
Kerstin Salhoff, Christian Berger

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See "Full package" for the applicable fee.

From the basics to the master class: BDIZ EDI offers webinar series on implantology

"Implantology step by step": Start of the training series

BDIZ EDI is launching a series of webinars that will leave no questions unanswered when it comes to oral implantology and related disciplines. Starting this autumn, everything will revolve around implantology—step by step. Hosted by Prof. Johannes Einwag (Würzburg), the series covers the entire range from the basics to the master class.

The series has been designed and will be moderated by Prof. Johannes Einwag, known for his successful continuing-education presentations, and by BDIZ EDI President Christian Berger. It covers everything from planning, preparation and implant placement to provisionalisation, prosthetics, orthodontics—and billing for these therapies. It is a great way for beginners to get started in implant dentistry and for everyone else to expand their knowledge. The training series can only be booked as a complete package.

The speaker pool

Well-known speakers are on board: Prof. Christof Dörfer, Dr Markus Tröltzsch, Dr Dirk Heering, Dr Ali-Reza Ketabi, Horst Dieterich, Prof. Johann Müller, Dr Kathrin Becker, Christian Berger and Kerstin Salhoff.

By way of introduction, BDIZ EDI is offering two separate free webinars. Like the rest of the series, they can be booked as "training on demand" after the series has completed.

Our compact offer

The online lectures will take place from 7:00 to 7:45 p.m., followed by a discussion. The series starts on 26 September 2023 with Dr Dirk Heering talking about "Planning". Two continuing education (CE) credits are available per webinar. If you register for the full package and attend all webinars, you will receive 14 CE points.

- Registration fee: €560
- Members: €300
- New members: €290
- Training on demand: See fee above

Once the training series has been completed, it will be available as "training on demand" at the same price. The final webinar will be held on 19 December 2023. Please turn over for the programme overview. For more information and to register, please visit www.bdizedi.org.

The series is in German language only. However, if you are interested in this postgraduate education, please contact us: office-munich@bdizedi.org

AWU

Review of the 33rd Conference of Experts on Implantology

Guidelines and their functions

Once a year, the BDIZ EDI invites dental experts to the Conference of Experts on Implantology on behalf of the Consensus Conference on Implantology. In 2023, the one-day continuing education event was held in Kiel in cooperation with the Schleswig-Holstein Dental Chamber.

The 33rd BDIZ EDI Conference of Experts on Implantology, convened on behalf of the Consensus Conference on Oral Implantology, is held each year with a different dental chamber as a partner.

For more than 30 years, experts on implantology—who provide expert opinions for courts, insurers and other stakeholders—have met once a year for the Conference of Experts on Implantology at the invitation of the BDIZ EDI. Also for more than 30 years, this Conference has also been held as part of the Consensus Conference on Implantology, which brings together specialist societies and professional associations.

The annual meeting serves as a forum for the exchange of information between the experts. One of the topics that the BDIZ EDI included in this year's programme was the topic of guidelines. Christian Berger, President of the BDIZ EDI, and Dr Michael Brandt, representing the hosting Dental Chamber at the Zahnärztehaus ("House of Dentists") in Kiel, welcomed the experts. The event was hosted by Berger and the Chairman of the BDIZ EDI Expert Committee, Dr Stefan Liepe. This article focuses on the various aspects of guidelines and their implications as they developed during the deliberations.

Guidelines are here to help

The first speaker, DDr Markus Tröltzsch (Ansbach), participated via video link. He is a member of the BDIZ EDI Board. As Chair of the Academy of Dentistry and Oral Medicine (APW) of the German Society of Dentistry and Oral Medicine (DGZMK), he is not only familiar with guideline work but has also co-authored some of them. How does knowledge transfer take place today? This was the question that Tröltzsch raised at the beginning of his presentation. Where do I get my know-ledge from? In a structured way? And how do I know that I am not reading the personal opinion of one single author?

In preparation for his presentation, he had asked ChatGPT for the definition of "medical guideline", with a surprising result: "The purpose of guidelines is to give professionals clear recommendations for action—according to the current state of knowledge and the best available evidence," the large language model had replied. But according to Tröltzsch, this is precisely what guidelines are not supposed to be, even though they are sometimes misinterpreted by practitioners—that guidelines limit the scope for action. "We want to give recommendations for action!" The aim of a good guideline is to critically examine options for action and to indicate where evidence exists—and where it does not.

In Germany, the Association of the Scientific Medical Societies (AWMF) is responsible for guidelines in all areas of medicine and dentistry. According to Tröltzsch, it would be useful to agree on a guideline

format, a procedure—similar to the four-star system for hotels (S1, S2 and S3). The AWMF defines guidelines as follows: systematically developed statements, current state of knowledge and systematic review and appraisal of evidence, clear recommendations for action and decision corridors (from which deviation is possible or sometimes even necessary).

One important point, Tröltzsch felt, is the disclosure of conflicts of interest, which are weighted by the AWMF. "This is where it gets critical: the person you want to be the author of a guideline is, after all, the person who should know something about the subject matter. And, of course, since we cannot do certain things at all without the industry providing us with the material, there are often financial links. At some point, it becomes difficult to find suitable authors."

Tröltzsch sees another dilemma in the guideline development process itself. The prevailing methodological background is very important. This is also crucial for assessing the range of possible actions: "Is my guideline strong or weak on evidence? We have to accept that there are limits to the level of evidence that can be attained for certain areas of dental practice." He gave the example of bisphosphonate therapy and dental management. The recommendation for antibiotic treatment was based on only one study with fewer than 60 participants—which is not very strong evidence. "However, since we know beyond doubt that the genesis of drug-induced osteonecrosis of the jaw is primarily due to bacterial infection, it would be madness to treat it without antibiotics."

If you search for guidelines, you will find 56 hits for dental implants, Tröltzsch pointed out. "And I think a lot of practitioners ask themselves, how am I going to read 56 guidelines?" But there is no need to, he said. The AWMF guidelines are written in such a way that the relevant knowledge can be quickly extracted with just a few mouse clicks. "We just have to know where and how to look."

The speaker concluded a guideline reflects the current state of knowledge—from expert consensus to meta-analysis.

Prof. Johann Müller from Munich criticised the guidelines.

Prof. Thomas Ratajczak presented the potential dangers of guidelines.

In addition, it provides specific recommendations for action, but these are graded. "We cannot escape liability by following a guideline, nor is liability triggered by disregarding a guideline." Markus Tröltzsch admits that it is not easy to keep track of all the existing guidelines. For him personally, guidelines generally provide valuable support. He suggested that reviewers or guideline experts should help colleagues adopt and apply the guideline.

Guidelines in the spotlight: Criticism of the CMD splint therapy guideline

Prof. Johannes Müller, Expert on Implantology and President of the European Dental Association (EDA) illustrated the risks that can be associated with guidelines, using functional therapy as an example. At the 2022 Bavarian Dentists' Congress, the German Society for Functional Diagnostics and Therapy (DGFTD) had presented its new scientific statement on CMD therapy—which completely contradicted its own guideline issued just six years earlier. According to Müller, the new guideline is currently being developed under the auspices of the DGZMK and DGFTD and has "enormous potential to change dentistry in the long term"—in a negative way, he believes.

Müller quotes the main message of the new guideline as follows: Internationally, occlusion has long ceased to play a role in craniomandibular dysfunction (CMD). For this and for other reasons, Müller con-

Prof. Ulrich M. Gassner discussed the EU Medical Device Regulation.

Dr Kai Voss, Vice President of the hosting Schleswig-Holstein, Dental Chamber, spoke on the problem of interpreting radiographs.

The hosts: Dr Stefan Liepe and Christian Berger from the BDIZ EDI and Dr Michael Brandt, President of the Schleswig-Holstein Dental Chamber (from left). In the background: The first speaker of the conference, DDr Markus Tröltzsch, joined in by video link.

siders the DGFTD guideline currently under development worthy of criticism. His list of criticisms is extensive: He cannot understand the justification for a new S2k guideline on splint therapy that states that too little evidence is available, especially since the S2k guideline on dental instrumental functional analysis and jaw relationship determination (AWMF: 083-017) was published only recently, in 2022.

The guardrails of the new guideline, now in its third reading: many "shall" instead of "should" provisions; literature references that did not match the topic. Müller suspects that this has to do with political issues. The majority of authors came from the TMD (temporomandibular dysfunction) field. "So occlusion does not play a role", he suspects. "Anything causally related to occlusion is not covered in the guideline. Literature on TMD is simply transferred to CMD, which means that we will only treat symptomatically." Not only has the literature been misquoted, but the clinical evidence has been completely omitted, and the members of the group involved in writing the guideline have been selected, in part, on inadequate grounds.

With this guideline, he concluded, it will not be possible to maintain the level of quality that has been achieved in Germany over decades.

The potential dangers of guidelines

Prof. Thomas Ratajczak, BDIZ EDI legal counsel, believes that the biggest problem with guidelines is that they often have less to do with science than with personal vanity. For Ratajczak, control by practitioners would be a minimum requirement for acceptance—especially in dentistry. He believes it to be inappropriate for guideline authors to cite their own studies as relevant literature for the guideline—there are examples of this in dentistry as well. He reported that two years ago his law firm halted an S3 dental guideline that had already been adopted. "The fact that it is at all possible to stop something like this by the mere threat of a lawsuit, after a mere evaluation of the guideline report, is significant," he said.

The intriguing question is how to seriously assess whether validated medical evidence has been incorporated into the guideline? In the case of the aforementioned S3 guideline, 42 studies were reviewed, the majority of which were deemed irrelevant. "Dentists are not used to scientifically dissecting a guideline."

According to a 2017 study that examined dentists' daily guideline practice, Ratajczak said, participants rated the cognitive integration performance of external knowledge as having little practical relevance. "How many of our clients in liability cases do you think do not even know the relevant guidelines that are being put forward by patient advocates?" His experience specifically includes expert witnesses. "Time and time again we have cases where even the expert witness does not know the guideline, and it is only in the patient advocate's response to the expert's opinion that a guideline is finally cited that the expert witness did not mention and had to admit he did not even know."

So what is the significance of guidelines? Systematically developed, but not relevant in the sense of being legally binding? In Ratajczak's experience, the guidelines absolutely do have legal relevance for the courts. "If experts base their testimony on guidelines, the courts are more likely to follow their reasoning."

Practitioners are expected to research whether a relevant guideline exists at all and to be able to analyse it critically. This involves looking at the relevant studies in the guideline and in the literature, and considering whether the strength of the recommendation is plausible. Then they would have to answer the question whether they may, or must, follow the guideline and they would have to document his decision. "This is what we expect to happen when we put guidelines out into the world."

The problem of interpreting radiographs

Dr Kai Voss, Vice President of the hosting Schleswig-Holstein Dental Chamber, has been involved in the field of quality assurance for over 30 years, both on behalf of the association and on various committees of the German Dental Association. He is also a member of an advisory committee for the Federal Ministry for the Environment and the state authorities on radiation protection. In his lecture, he addressed the issue of misinterpretation of radiographs by experts, which he believes can be very conflictual. He presented various expert opinions and examples of what can be "interpreted" in radiographs. Expert review of radiographs is a description, not a diagnosis, he clarified, which is not always obvious. It makes sense to describe to the court what there is to see. He cited projection geometry and misinterpretation due to artefacts as one of the problem areas. However, Voss made it clear that the pillars of assessment are the patient's history and clinical findings; imaging only comes into play when "the hands and the eyes and the brain are used together". "We should not offer assessments unless they aren't somehow provable and verifiable by additional diagnostic parameters."

The Mecklenburg-Vorpommern Dental Chamber shows interest in the BDIZ EDI expert conference: BDIZ EDI President Christian Berger, President of the Chamber (left), Stefanie Tiede (second from left) and Dr Gunnar Letzner, Chairman of the Board of the State Dental Association (second from right), with colleagues from Schleswig-Holstein.

The "Notified Bodies" bottleneck and the MDR

Prof. Ulrich M. Gassner (Augsburg), a lawyer and the founding director of the Research Centre for E-Health Law (FMPR) at the University of Augsburg, spoke about the EU Medical Device Regulation (MDR), which has been in force for six years. In 2019, the BDIZ EDI had commissioned the law firm of Ratajczak & Partners to conduct a survey on the expectations of the dental industry.

The results were published in *BDIZ EDI konkret 2/2020* and confirmed Gassner's assessment, which he had already predicted in 2017. "The MDR was accompanied by an explosion in the number of rules we are subjected to." He cited the disappearance of products from the market as an example from the survey at the time. In fact, many medium-sized dental manufacturers have given up because the bureaucracy and its costs have increased immensely. The "streamlining" of the product portfolio has also been evident since 2019, he said. The entry into force of the MDR has been postponed twice, ostensibly because of the COVID-19 pandemic, but actually because of a lack of notified bodies.

"We are talking about regulatory overkill," Gassner confirmed, especially at a time when manufacturers of innovative products often have to give up early. He cited the case of the Munich paediatrician who had travelled to Brussels to meet EU Commission President von der Leyen because stents for infant cardiac surgery were no longer available; the manufacturer had discontinued this line of business.

Gassner himself and representatives of the Baden-Württemberg state government had travelled to Brussels and found a Commission that seemed willing to talk. The concrete response from Brussels was to set up a task force of mission and inventory products to exert a "sub-legislative" controlling influence. In a position paper addressed to the Notified Bodies responsible for CE certification, urging them to be more flexible. "There is something to be gained from exerting pressure", Gassner admitted. The transition period for existing products will be extended; this also applies to implants.

Dr Stefan Liepe concluded the one-day Conference of Experts on Implantology—not without looking ahead to the 34th conference, which will be held in Dresden in 2024 in cooperation with the Dental Chamber of Saxony.

AWU

General Meeting 2023 in Kiel

BDIZ EDI reacts to political situation

First the pandemic, then the health care austerity bill. No one in the BDIZ EDI is surprised that the current Federal Minister of Health immediately identified those who have to foot the bill: the outpatient sector and the dentists and general practitioners, their employees and of course their patients. What the BDIZ EDI has set up in 2022/2023 to provide assistance to its members was revealed at this year's General Meeting, which was embedded in the specialist Expert Conference in Kiel.

In his review before the General Meeting in Kiel, BDIZ EDI President Christian Berger reported on the association's work over the past year. We reproduce his political statement here in full.

Statement by Christian Berger

"There is one major issue that has been bothering us for the past year: the Statutory Health Insurance (SHI) Financial Stabilisation Act and the associated budgeting of dental services. Why am I talking about budgeting here? Because it also affects the systematic treatment of periodontitis, which has received new service codes effective 1 July 2021 in accordance with the S3 guideline. The Federal Joint Committee (G-BA), the highest decision-making body of the joint self-government of physicians, dentists, hospitals and health insurance funds in Germany, has declared and evaluated these services as independent services in its BEMA fee schedule.

This is a good step in the right direction, but unfortunately adequate positions in the German Standard Schedule of Fees for Dentist (GOZ)—the schedule applies to patients with private health insurance, PHI—lacks the appropriate positions. Unfortunately, the "old" GOZ service codes from 2012/1988 no longer correspond to the current guideline-based standard. This is a dilemma that the BDIZ EDI has been pointing out for years: Privately insured patients are increasingly being treated as second-class patients, and a comparison with the new SHI rules for periodontal treatment makes this all too clear.

I would now like to turn to the work of the BDIZ EDI, because we are preparing our own response to the new law and to the effects on the GOZ—this is our main topic!

1. First things first: The new BDIZ EDI table—which all members received in May—shows a new accounting method for periodontal treatment according to the GOZ. The new approach uses the analogue billing concept. For the first time, we have compared the "new" periodontal services with analogue positions in the 2022 table. We have made this even more specific in the 2023 table and extended it to all periodontal services.

Our opinion, and that of many dental chambers, is as follows: Now that science has provided a valuable basis for periodontal therapy with the new S3 guideline and the G-BA has set significantly higher reimbursement rates for SHI patients than in the past with the BEMA schedule, this systematic course of therapy must also be implemented as an overall concept for PHI patients in accordance with the guideline in order to ensure treatment that is equivalent to the state of the art as now reflected by SHI. Kerstin Salhoff and I have explained our approach in two webinars. Our proposed solution to the GOZ dilemma is called analogue billing. We have deliberately proposed low multipliers that only slightly exceed the BEMA fees. In the event of disputes with PHI representa-

Expert Symposium and EuCC

Of course, the work of the BDIZ EDI during the year is not limited to entrepreneurial/business and political aspects. The Expert Symposium took place live in Cologne in 2023, as usual during the carnival celebrations. The 18th European Consensus Conference has also produced another guideline: short, angulated and reduced-diameter implants—2nd update. The date for the 19th Expert Symposium in Cologne has been set and the topic has been selected: imaging techniques in oral implantology.

Webinars

The "BDIZ EDI informs" webinar series has been running since the beginning of the COVID-19 pandemic. "To date, we have had no fewer than 20,000 participants," reported the BDIZ EDI President, who presented a new format to the General Meeting. "With the 'Implantology step by step' webinars with Professor Einwag, we want to professionalise our online continuing-education series, running individual modules through our trainings, each building on the previous one."

"Implantology step by step" covers everything worth knowing, from planning, preparation and implantation to provisional restoration, prosthetics, orthodontics and billing for these therapies, so that newcomers can get started in oral implantology and experienced users can expand their level of knowledge. The training series is available as a complete package and in the form of individual streamed recordings.

Curricula

In October 2023, the 25th Curriculum Implantology by the BDIZ EDI and the University of Cologne will be launched. The Curriculum is a success story with around 900 participants having successfully completed the course to date. More than 80 per cent of them continue as members of the BDIZ EDI.

Communication

In order to save on money and other resources, the BDIZ EDI has been keeping its members informed with its electronic newsletter for several years. Subscribers regularly receive news about current developments and, of course, about upcoming online and face-to-face events.

tives, we will help the members concerned to assert their legitimate fee claims.

The table also clearly shows that for many periodontal services we dentists have to charge the 2.5 multiplier rate of the GOZ 2012 or even exceed it in order to receive the remuneration for comparable services that the SHI will pay on the basis of the new BEMA schedule.

2. Over the past decades, we dentists in Germany have achieved little or nothing in our dialogue or discussions with politicians, and we are unlikely to achieve anything in the future either. The online petition initiated a year ago by dentists in Bavaria to increase the GOZ point value is not making any progress.

Our association was founded in 1989 in response to the 1988 GOZ. Since then, we have gone down many different roads—even to the Federal Constitutional Court. Now is the time for us to offer our members solutions to find a way out of the GOZ dilemma. The BDIZ EDI table can help from a business perspective.

As early as 2022, we had decided to take legal action against the unequal treatment in the fee schedules and against the 65-year standstill in the GOZ point value. Our legal counsel, Professor Ratajczak, wrote to the Federal Minister of Health, Dr Karl Lauterbach, in May, asking for a statement. The deadline for the response from the BMG is now approaching. If there is no response or if the response is unsatisfactory, six dentists— mainly from the Board of the BDIZ EDI—will take the matter to the Berlin Administrative Court.

We deplore the fact that the legal requirements of Section 15 of the German Dentistry Act (ZHG) have not been complied with for decades by failing to adjust the dentists' fee schedule. The Federal Government seems to have no problem regularly adjusting the veterinary fee schedule to changing economic conditions, most recently on 1 October 2022. This unequal treatment violates the general principle of equality (Article 3 [1] of the German Basic Law) and freedom of dentists to practise their profession (Article 12 [1] of the German Basic Law).

(Editor's note: In the meantime, the lawsuit is being prepared; there has been no response from the Ministry.)

3. I would like to refer once again to the SHI Financial Stabilisation Act I mentioned at the beginning. Here we have given our members ammunition in the form of practice posters and information leaflets to point out to their patients who is really to blame for the limitation of funds for dental care: It is not the dentist, nor the health insurance company, but the Federal Government that is responsible for the budget.

Dear members, your BDIZ EDI thus helps and supports you in matters of billing, on three levels: business, political and legal! You will find my remarks and the associated papers on our website and as a focus topic in the next [EDI Journal]. Let us not forget to mention the billing hotline with Kerstin Salhoff, which we have been offering our members since 2017, answering their billing questions every Tuesday from 8 am to noon."

Christian Berger (left) was lecturing at the four-chamber-meeting in Karlovy Vary.

The newsletter is currently subscribed by 2,300 members.

Consensus Conferences

The BDIZ EDI not only participates in the Consensus Conferences on implantology, but also in the guideline conferences of DG PARO, DGI and DGZMK, in order to contribute the broad professional competence of its oral implantologists. "It is important for us to be represented there so we can respond in good time to any developments that seem to be going in the wrong direction," said Berger.

Expert opinions

The 33rd Conference of Experts on Implantology on behalf of the Implantology Consensus Conference was held for the first time under the leadership of Dr Stefan Liepe, who has chaired the Expert Committee since 2022. Christian Berger thanked this year's cooperation partner, the Schleswig-Holstein Dental Chamber, and particularly its President, Dr Michael Brandt.

Europe

In May 2023, the BDIZ EDI actively participated in a four-chamber meeting of the dental chambers of the Czech Republic, Saxony, Bavaria and Austria in Karlovy Vary. The BDIZ EDI was represented by Jörg Neugebauer and Christian Berger, who gave lectures during the scientific programme.

The Europe Symposium was held in Valpolicella together with OEMUS MEDIA AG. The BDIZ EDI had its own booth in the exhibition.

IDS 2023

IDS 2023 took place in Cologne in March and celebrated its 100th anniversary. For the first time, the BDIZ EDI explored its current topics in the form of live recorded interviews. One of the topics was the legal action taken by the BDIZ EDI in the matter of GOZ, the German Standard Schedule of Fees for Dentists. "Participation is a must for us to 'stay in the game' and to present ourselves together with our partner associations as the international point of contact for all questions relating to oral implantology, dental billing and health care law," said the BDIZ EDI President.

Publications, web, social networks

The BDIZ EDI provides its members with a wide range of information that can be accessed online via its website, newsletter, Instagram, Facebook and YouTube. Suggestion: Be sure you use the members' area on the web. This is the only way to access webinars, download important forms or checklists, and browse the case law database.

The Board

The work of the BDIZ EDI Board did not go unmentioned in Berger's review of the year: "Once again, our Board members have worked with great passion and commitment to provide you with valuable information and our recommendations. I would like to thank Joachim E. Zöller, Jörg Neugebauer, Detlef Hildebrand, Stefan Liepe, Wolfgang Neumann, Freimut Vizethum, Renate Tischer, Nathalie Khasin and since 2021 Markus Tröltzsch!"

Membership

The BDIZ EDI has seen a significant increase in membership, particularly through its webinar series and the Curriculum. "However," said Berger, "it is becoming clear that we still have many first-generation members who have been working in their practices for more than 20 or even 30 years, but there are also members who are gradually retiring from their practices. Most of them nevertheless choose to remain members—which makes us very happy. This reflects clearly and favourably on the association and its work."

On the other hand, the association also needs new blood to remain strong in the face of internal and external challenges and to be able to respond to new laws, regulations and ordinances. "I would like to appeal to you to help us maintain our strength. Talk to the young people in your practice, show them what we can do. After all, this is what we have demonstrated, not least in these difficult times."

Finally, BDIZ EDI President Christian Berger extended his thanks to the staff of the BDIZ EDI: Brigitte Nötzel in Cologne, who had run the BDIZ EDI office in Cologne until the end of 2022; Helga Karanikas in Munich; and Kerstin Salhoff, who is in charge of the billing hotline. He also thanked Anita Wuttke for her commitment

to the media work of the association. She is also responsible for European affairs and is Editor-in-Chief of the trade magazines *BDIZ EDI konkret* and *EDI Journal*. She also conceived, marketed and presented the "BDIZ EDI informs" webinar series.

Continuing professional development

For years, Prof. Joachim E. Zöller has been the Scientific Director of the association. His duties include the search for suitable topics and speakers at the Expert Symposia, the European Consensus Conferences and the annual symposia. The BDIZ EDI Vice President is the initiator and responsible head of the Curricula Implantology, which he has repeatedly modernised together with Prof. Nickenig and Prof. Neugebauer.

Curriculum 24 has now been completed with two parallel courses. Curriculum 25 will start in October. The participants were highly satisfied with the highly relevant Curriculum Implantology of the BDIZ EDI with their modular design, Zöller reported. "Previously, we'd be getting participants who had already placed a thousand implants or more. Today, the trend is that we are seeing newcomers to the profession."

Zöller considers the uniform generally accepted professional opinion taught in the Curriculum the secret of its success—being able to draw on reliable sources at this stage, as a guideline to live by for newcomers to the profession. He announced the establishment of the additional Curriculum South in Munich due to great demand. Although he himself has since retired as director at the University of Cologne, the rooms and facilities of the Anatomical Institute, he said, were still available for the Curriculum.

For Zöller, the Curriculum Implantology and the Expert Symposium in Cologne are the flagships of the BDIZ EDI. The annual guidelines developed by the European Consensus Conference are pioneering and groundbreaking endeavours. Zöller announced that the next, that is, the 19th Expert Symposium on 11 February 2024 will address the topic of imaging techniques in oral implantology.

In Kiel, the Board reported on its work during the past year.

With its combination of the Expert Symposium and the European Consensus Conference, the BDIZ EDI promotes new scientific findings every year. Currently, the 2023 guideline on "Short, angulated and reduced-diameter implants—2nd update" is available.

As told, Zöller considered the European Consensus Conference of the BDIZ EDI the top source of received knowledge on the European level—even if it is not always fully in agreement with official guidelines.

The Chair of the Expert Committee, Dr Stefan Liepe, thanked Dr Michael Brandt, President of the Schleswig-Holstein Dental Chamber, this year's cooperation partner of the Expert Committee in Kiel. He announced the 34th Expert Conference on behalf of the Consensus Conference to be held in 2024 in collaboration with the Saxony Dental Chamber in Dresden.

Increased functionality

In his role as Secretary and Managing Director, Liepe explained the restructuring process that BDIZ EDI was currently undergoing, with the digital transformation of many processes and the relocation of the BDIZ EDI office to Munich. This will also be accompanied by a change of tax adviser. The change to the Munich Association Court and the change in banking relationship have already been completed. The new association software will allow invoices and office documents to be increasingly generated digitally. Liepe held out the prospect of cost savings in the future.

Finances

Treasurer Dr Wolfgang Neumann presented the budget. In order to be able to finance the digitalisation mentioned by Managing Director Dr Stefan Liepe and the legal action against the non-adjustment of the point value before the Administrative Court, reserves have been formed accordingly. Following the presentation of the budget for 2024 and the report of the auditor, Dr Neumann, who confirmed that the accounts had been kept in a sound and proper manner, the General Assembly unanimously granted discharge to the Board of Directors and approved the budget for 2024. For several years now, provisions have been made in accordance with Board's instructions in order to be able to finance major projects (legal steps to be taken in the area of the Standard Schedule of Fees [GOZ], publications such as the new BDIZ EDI fees table, etc.).

AWU

32nd Expert Symposium on Regenerative Procedures in Dentistry

Concepts of prosthetic care

For the 32nd time, the Expert Symposium under the direction of Prof. Joachim Zöller (Cologne) will take place on Fuerteventura this year, bringing together academic research and clinical practice. From 27 October to 3 November 2023, there will be many interesting lectures, leisure and sports at the Robinson Club Esquinzo Playa in Fuerteventura.

The 32nd Expert Symposium will focus on different approaches to prosthetic care using implant-supported restorations, from single crowns, implant-supported bridges and the all-on-4/all-on-6 concept to coverdentures and much more. These concepts will be explored and critically evaluated by experienced speakers who offer different solutions for different clinical situations and patient needs. The presentations are designed to help dentists recommend the best treatment options based on the patient's individual situations and plan their prosthetic restorations accordingly.

Please find the final programme with main podium and workshops on the internet: **www.bdizedi.org**

The White Night is a tradition on Fuerteventura.

Lectures take place in the pyramid.

All speakers are based in Germany unless otherwise stated.

32nd Expert Symposium: "Concepts of Prosthetic Care"

27 October to 3 November 2023, Robinson Club Esquinzo Playa, Fuerteventura

Presentations

Budgeting of Statutory Health Insurance for dental care and standstill of the German Standard Schedule of Fees for Dentists (GOZ)
Christian Berger, Kempten

The digital workflow as a prerequisite for atraumatic implantation and augmentation
Prof. Fred Bergman, Viernheim

What does good dentistry look like in 2023?
Prof. Florian Beuer MME, Berlin

Coordination of prosthetic and surgical treatment sequences in complex care
Dr Lars Börner, Berlin

Dental aesthetics checklist
Dr Wolfram Bücking, Wangen

Are there advantages to using an elastic base material such as Trinia™ for fixed partial dentures?
Prof. Rolf Ewers, Vienna, Austria

AI and the experts—fatal attraction
Dr Ulrich Fürst, Attnang-Puchheim

All-ceramic implant prosthetics on TI-Base abutments: results and experience of a 5-year retrospective cohort study
Dr Peter Gehrke and Carsten Fischer, Ludwigshafen

Aesthetics and function: borderline areas in planning and implementation
Dr Martin Gollner, Bayreuth

Imperial-in-a-Smile Box—efficient chairside immediate restoration using a fully digital workflow
Dr Uwe Jaenisch, Hohen Neuendorf

Post-Vac, Post-COVID, Long COVID: Surgical risks in implant and oral surgery—what do we need to consider?
Dr Sigurd Hafner, Munich

Stem cells and regeneration: versatile applications from implantology to anti-aging
Prof. Jürgen Hescheler, Cologne

Dentistry from A to Z: optimisation of implant/prosthetic cases with Alphalign
Dr Jutta Hüsch and Dr Uwe Peterseim, Kassel

COVID-19: a pandemic like many others?
Prof. Axel Karenberg, Cologne

Implantological concept in the aesthetic zone
Dr Jan Klenke, Hamburg

Biological permeability of the implant design—a key factor in the prevention of peri-implantitis
Dr Stefan König, Bochum

Will white implants replace grey implants?
Dr Adina Landschoof, Geretsried

Digital prosthetic treatment options and optimised cementation of tooth-coloured CAD/CAM materials
Prof. Anja Liebermann, Cologne

Efficient patient care and flexible working conditions with dentinostic—the app for precise remote diagnosis
Dr Tina Mandel, Cologne

Immediate implant placement—is there another way?
Dr Alexander Müller-Busch, Ingolstadt

One year without drilling—the beginning of a new phase in life
Dr Christoph Niesel, Karlsruhe

How does the prosthetic design determine the long-term bone level?
Prof. Jörg Neugebauer, Landsberg am Lech

Immediate implant placement or ridge preservation—what does the evidence say?
Dr Stefan Reinhardt, Münster

What use is AI for us?
Henriette Reker, Lord Mayor, Cologne

Modern leadership: effective leadership in times of personnel change
Bianca Rieken, Winsen an der Luhe

Endocarditis prophylaxis: developments and current recommendations
Dr Vanessa Wennekes-Neagu, Emmendingen

Oral surgery in patients on anticoagulant therapy: what needs to be considered?
Dr Valentin Wennekes-Neagu, Emmendingen

The semilunar technique: bone-block harvesting 2.0 for the implantology practice. (Hammering was yesterday!)
Dr Frank Zastrow, Wiesloch

The jaw: destructive inflammatory processes and their treatment
Dr Matthias Zirk, Cologne

NEW: Refresher course in radiation protection (technical qualification and proof of knowledge)
Dr Friedhelm Weber and Dr Jochen Völkening, Hamm

Workshops

3D planning: Atraumatic horizontal augmentation and intra-oral 3D scanning. Practical exercises on animal bones and using the intra-oral 3D scanner
Prof. Fred Bergman, Viernheim

Treatment planning for complex cases
Prof. Florian Beuer MME, Berlin

Imperial-in-a-Smile Box: data acquisition/PC-based planning/hands-on exercises—fully guided implant drilling, including insertion and adhesive cementation of the prefabricated temporary restoration
Dr Uwe Jaenisch, Hohen Neuendorf

Navigated implantation using AI—live demonstration of the rapid conversion from intra-oral scan to certified biocompatible surgical guide
Dr Sigurd Hafner, Munich

Introduction to Alphalign
Dr Uwe Hüsch and Dr Jutta Hüsch, Kassel

The i-LiNQ® implant: revolutionary design with high biological approach
Dr Stefan König, Bochum

White implants—beautiful and reliable!
Dr Adina Landschoof, Geretsried

Mastering dentinostic: an interactive workshop on using the remote-diagnosis app for efficient patient care
Dr Tina Mandel, Cologne

High primary stability despite an insufficient bone supply—aspiration or reality?
Dr Alexander Müller-Busch, Ingolstadt

Dentistry makes a difference—a humanitarian mission in Kenya
Dr Christoph Niesel, Karlsruhe

Immediate implant placement, immediate restoration and immediate loading—my concept
Dr Stefan Reinhardt, Münster

Communication that moves: Successfully conducting staff appraisals
Bianca Rieken, Winsen an der Luhe

Instagram, Facebook, Twitter, YouTube

BDIZ EDI on social media

Facebook, Instagram, Twitter and YouTube are the most popular social networking channels. BDIZ EDI uses these platforms to keep its own members and the members of partner associations, as well as all users interested in oral implantology, informed.

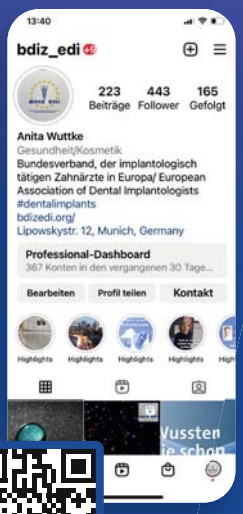
"In addition to Facebook, YouTube and Twitter, Instagram has become another important component of our social media activities", says Dr Stefan Liepe, Managing Director of BDIZ EDI. "We want our channels to provide impartial information, both nationally and internationally, that is free of third-party interests. BDIZ EDI regularly provides information on implantology and topics relevant to dental practices in the areas of law, billing and practice hygiene. Of course, we also provide links to interesting professional articles and exciting behind-the-scenes insights about our association, which is active in Germany and in Europe."

The online seminars that BDIZ EDI launched at the height of the COVID-19 crisis can be viewed on the YouTube channel. The latest information can be found on Instagram, Twitter and Facebook. BDIZ EDI often plays a pioneering role when it comes to scrutinising laws and regulations that affect dentists—even taking cases to the German Constitutional Court if necessary. It intervenes in health policy on behalf of all dentists at the German and European level.

AWU

BDIZ EDI on social media:

Facebook
@bdizediorg



Instagram
@bdiz_edi

YouTube
@bdizediimplantologie7192

Twitter
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24th Curriculum Implantology is now completed

Congratulations to the curriculum graduates!

The 24th Curriculum Implantology, jointly arranged by BDIZ EDI and the University of Cologne, is now completed, following the conclusion of the final exams. The participants had completed eight modules on oral implantology over a period of one year.

The successful graduates of the 24th Curriculum Implantology at the University of Cologne with their teacher and Prof. Dr Hans-Joachim Nickenig.

The courses were held in hybrid form—partly online and partly in small groups that were physically separated.

The 24th Curriculum Implantology has been the most recent chapter of a long success story. A total of 700 graduates have been trained in oral implantology since 2004, the year of the first curriculum.

"In addition to theoretical presentations, practical demonstrations and personal experience as obtained during prac-

tical exercises or the treatment of actual patients are important," as Prof. Joachim E. Zöller had said in 2004. Zöller, today Vice President of BDIZ EDI, was and continues to be responsible for implementing the curriculum and its objectives; over the years, he has proven again and again that it is possible to do so successfully.

Eight modules—one curriculum

Today the curriculum consists of eight modules in two-day courses, which include observation and are supervised by experienced instructors. The overall objective is practical relevance. To achieve this, the teaching modules and its contents are subject to constant updating.

After successful observation and supervision, participants can take the exam for the formal professional focus on oral implantology if they can show proof of the required practical experience.

No closed-shop policy

All modules can be booked individually. Modules completed with other providers can be approved for credit with proper documentation. Prof. Hans-Joachim Nickenig, who had modernised the content of the curriculum when he took over several years ago, is the point of contact for all participants.

Our instructors

The instructors are experienced implantologists and have presented the training units with videos and live patient demonstrations for many years.

Each course includes practical sessions, most of which use realistic training models or human specimens rather than the usual plastic jaw replicas. "The training units were designed to highlight the interrelationships between the prosthetic and surgical aspects, even where the major topics concentrate on one or the other subject area," said Zöller. "A limited number of participants—an aspect that is important to both BDIZ EDI and the university team—ensures a lively exchange of ideas between instructors and participants."

Graduates of the 24th curriculum:	
Baschar Al-Trini	Georgios Maleas
Clara Dorothea Bartsch	Ulkar Mammadova
Dr Natali Berdik-Rakuljic	Kyra Ilona Meyer
Dr Manuela Boor	Dr Sebastian Michaelis
Dr Sara Boroumand	Christine Müller
Vasiliki Chaidogianni	Dr Henning Oeken
Dr Maximilian Georg Decker	Ruth Ohanes
Isabelle Johanna Susanne Diedenhofen	Dr Nora Owin
Dr Anna Dreßler	Martin Pecher
Dr Mimouna El Bajjati	Dr Daniel Nawid Pooyeh
Dr Gregor Geers	Maximilian Harry Popp
Sophia Gies	Sebastian Rauschenbach
Dimitrije Glamocak	Dr Dr Vadim Rempel
Victoria Grewe	Jan Reuver
Dr Michael Härer	Dr Dr Maximilian Riekert
Vanja Jovanovic	Dr Maren Susan Roggenthien
Rawan Kalach	Claudia Schlobohm
Dr Kinan Kandil	Valentin E. Schmiedl
Mohamad Kashkoul	Dr Lisa Steier
Enolia Khogaz	Dr Katharina Schnabl
Erwin Klassen	Luisa Schoebel
Dr (RUS) Igor Komissarchik	Fabienne Schumacher
Conrad Kreilein	Dr Nadin Tahan
Dr Nikolas Lanzerath	Lennard Sebastian Wehr
Ina Schmidt	Iwona Wlodarczyk, M.Sc.
Marlies Makrellis	Daniel Wolter

25th Curriculum Implantology starting soon

The 25th Curriculum Implantology will kick off in October. Thanks to the strong demand, like the year before, BDIZ EDI and the University of Cologne have set up a second group. The Cologne curriculum is already fully booked. The Curriculum South in Munich is planned for 2024 and is expected to start in autumn.

For more information, visit the BDIZ EDI website at www.bdizedi.org/en/curriculum-implantology.

New BDIZ EDI implant pass

Bigger, nicer, more useful

The BDIZ EDI has updated its implant pass. Now was a good time, coincident with the launch of the updated BDIZ EDI logo. The size of the implant pass has not changed—it still fits in any wallet. But thanks to a clever folding technique, it now covers a lot more ground.

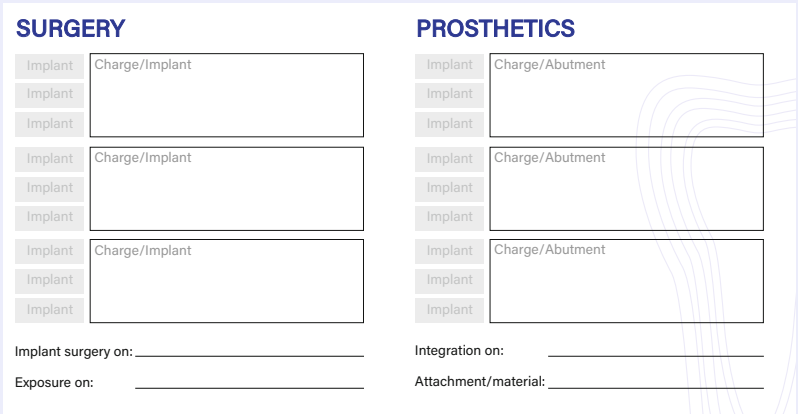
A copy of the implant pass is included with this issue for your inspection.

The small implant pass has been with the BDIZ EDI for more than 30 years. As part of the relaunch of the association's logo and corporate identity, it has been completely renewed and adapted to the current needs of the implantology practice.

Its physical size has remained the same. When folded, the implant pass still matches the size of the standard checkbook for routine dental visits. Discreet on the outside, informative and expandable on the inside. The implant pass can be individually expanded with stickers to accommodate a greater number of implants and restorations. In addition to the patient's details and the practice seal, the following information is provided for the patient to sign: "I have decided to have dental treatment with implants. I have been fully informed of the risks and benefits prior to the treatment. I understand that intensive oral hygiene and regular check-ups are necessary for long-term success. I agree to have at least two dental check-ups per year and will contact my dentist immediately if I notice even the slightest change in or around the implants."

Details and ordering information

BDIZ EDI implant pass for dental practices (folded size: 73 × 98 mm)
16 pages, with images of all maxillary and mandibular teeth, surgery, prosthetics, diagnosis, patient information, signature and practice seal. Surgical and prosthetic stickers can be added.



Available in English: print-on-demand.

More information is coming up soon.
Please check the BDIZ EDI's online shop.

Scan this QR code to access the shop

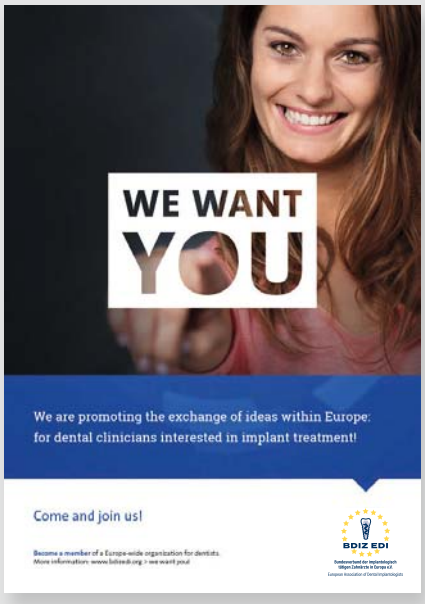
"The new implant pass contains a lot of important information and is a useful tool for surgeons, prosthodontists and, of course, patients," says Dr Wolfgang Neumann, BDIZ EDI Treasurer and board member. Together with Christian Berger, he contributed his dental expertise to the creation of the new implant pass.

AWU

BDIZ EDI and its multifaceted work

We want YOU!

At IDS, BDIZ EDI launched its "We want you" information campaign. The aim is to interest young dentists from Germany and Europe in oral implantology and in the work of BDIZ EDI.



With the "We want you" campaign, the association wants to draw attention to the many different support services it offers for all dental practices, even beyond implantology, including continuing education for newcomers to the profession and seasoned practitioners alike.

BDIZ EDI is an active Europe-wide association that in 2002 went beyond the borders of Germany to forge collaborations, support partner associations and make its voice heard in EU politics. Of course, health policy interventions are also initiated at the federal level. BDIZ EDI is the only association to have presented its own draft law on combating corruption in the health sector. It is currently working intensively on the Medical Device Regulation (MDR) and its many problems.

With its information offensive, BDIZ EDI is highlighting its work in the field of continuing education:

- "Meet the Experts" allows newcomers to get in touch with experienced implantologists and top lecturers.
- An absolute must for anyone interested in implantology is the Curriculum Implantology, which is run in cooperation with the University of Cologne. This eight-module course teaches the key building blocks of implant dentistry to small groups of participants. The curriculum takes place at the University of Cologne. It runs for one year and is designed to be affordable for newcomers to the profession. It is planned to start the Curriculum South in Munich in 2024. Some partner associations have adopted, and adapted, the modules for their countries: Greece, Serbia, Poland—and soon even India.
- Each year, the BDIZ EDI Expert Symposium provides an update on a current issue in implant dentistry, and the associated European Consensus Conference (EuCC) provides guidance for practitioners.
- The Europe Symposium of BDIZ EDI provides an opportunity to look beyond the local dental fence and to appreciate the work of European colleagues and exchange ideas. This year's Europe Symposium took place in June in a villa near Verona in cooperation with OEMUS MEDIA AG.

A wide field

The full scope of BDIZ EDI's work is illustrated by the "BDIZ EDI informs" webinar series, which the association has been organising since the start of the COVID-19 pandemic in 2020. The continuing-education webinars feature top-notch presenters and cover dental topics (not just implantology!) as well as legal issues. The webinars are particularly suitable for strategic practice orientation for current and future practice owners. BDIZ EDI webinars are aimed at dentists and all members of the dental team. Participation is free of charge for members. On average, BDIZ EDI webinars are attended by between 150 and 400 participants. Members can view the recorded webinars in the seminar archive after the live broadcast.

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BDIZ EDI Quality Guideline for Implantology

Recommendations for practitioners and patients

BDIZ EDI President Christian Berger explains in this interview why the association created the Quality Guideline for Implantology. Berger was instrumental in revising the Quality Guideline, which was first published in 2002 and is regularly updated—the latest update is from 2019. It is intended as a set of recommendations for practitioners and patients.

BDIZ EDI President Christian Berger talks about the revised Quality Guideline for Implantology.

What are the benefits of the BDIZ EDI Quality Guideline for Implantology?

Our Quality Guideline has the status of a recommendation and serves as a tool for self-evaluation and self-assessment. Only dental professionals know their own work and their patients, with all their expectations and problems. Only treatment providers themselves can reliably assess how the prevailing conditions—which influence every medical treatment, sometimes decisively—have positively or negatively influenced the respective treatment result. BDIZ EDI would like to emphasise the fact that the criteria are based on evidence from dental science. They can therefore claim validity even in the current political and scientific environment, where scientific evidence is unfortunately often disregarded when it comes to defining what constitutes fair remuneration. In 2000, the Quality Guideline was a first attempt to highlight the issue of quality in oral implantology in Germany. The Quality Guideline has been continuously modified and updated and will continue to be updated as necessary.

What about its implementation in practice?

First things first: The Quality Guideline is not intended to prescribe or introduce standardised treatment procedures or practice structures. Dentistry is a liberal profession, and it will continue to be up to dentists to decide how to achieve the required quality, because it is their responsibility to achieve it. The Quality Guideline sets out a list of six quality criteria for implant procedures: medical history, examination, treatment planning, patient education, concomitant prevention—as well as implant surgery and implant prosthetics themselves. These quality criteria are assessed on the basis of five evaluation criteria: What is the indication for the proposed treatment? What are the treatment goals? What are the risk factors that affect the treatment goals? Are there standards related to the treatment measures? What are the indicators of treatment outcome? This evaluation assigns the treatment result one of the following categories:

- A+ Excellent result with no reservations whatsoever
- A Good result, appropriate to aspire to in normal cases
- B Deficient, potentially harmful
- C Unacceptable, alternatives required

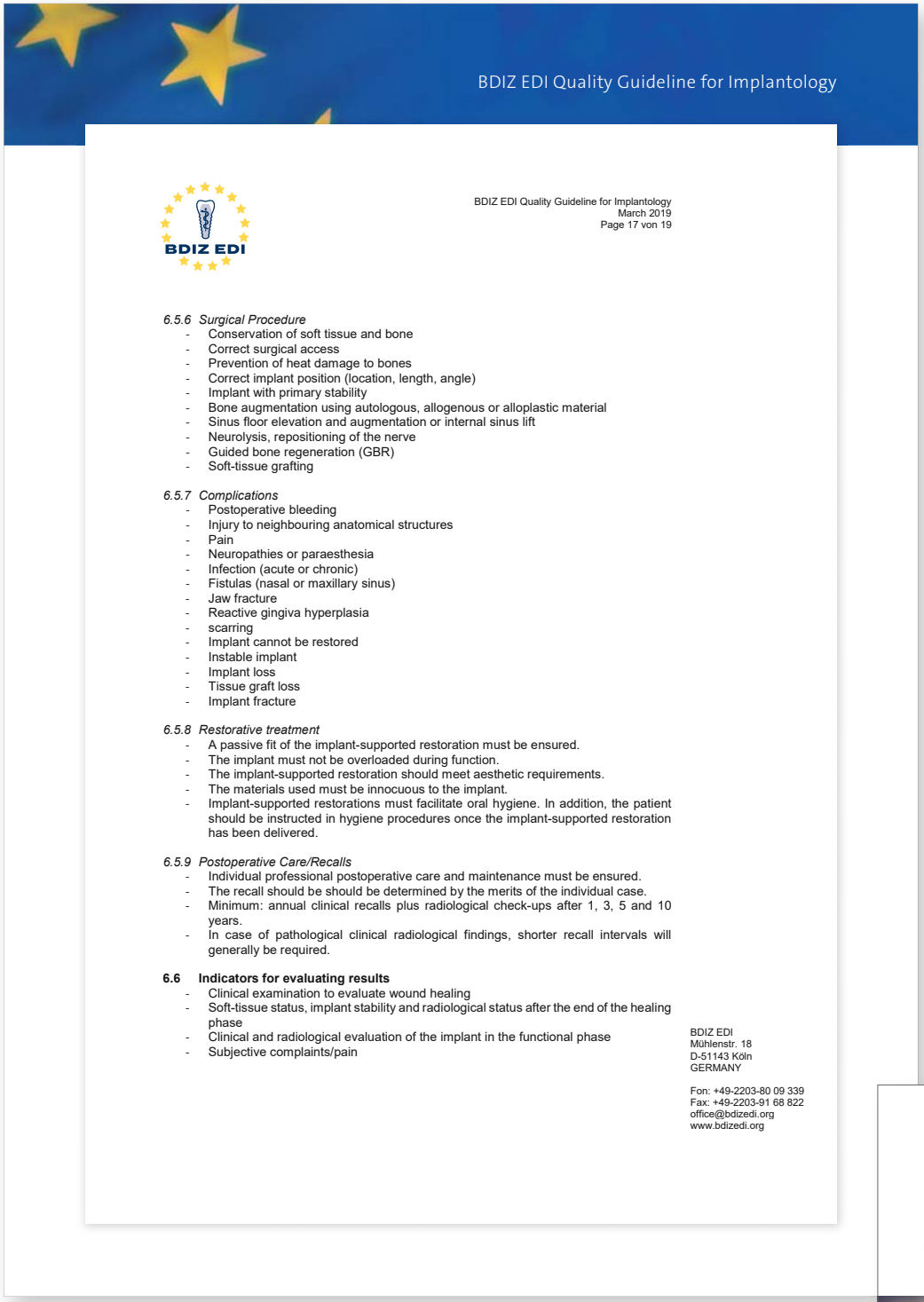
The Quality Guideline provides a step-by-step procedure for applying these quality and evaluation criteria, culminating in a list of criteria and of the categories A+ to C.

What is the aim of the BDIZ EDI Quality Guideline for Implantology?

Promoting quality in implant treatment has been the main objective of BDIZ EDI for 30 years now. It was no coincidence that in 2001 we received recognition from the German Federal Constitutional Court for a formal specialisation, or professional focus, on oral implantology for dentists. Our Quality and Registration (Q&R) Committee tests products and materials. We continue to develop our own biotope of implantological experts. We emphasise the importance of well-trained professionals who regularly participate in continuing education (CE) activities. And we publish annual guidelines on current implantological issues complete with recommendations for clinicians. Of course, we know that assessing the quality of dental outcomes is not an easy task, not least because quality issues are controversial even among many experts in the field. Our aim is to provide implant dentists—and, where possible, their patients—with a suitably calibrated yardstick by which they can assess the results achieved for themselves and for their patients.

Thank you very much for your comments.

The interview was conducted by Anita Wuttke, Editor-in-Chief.



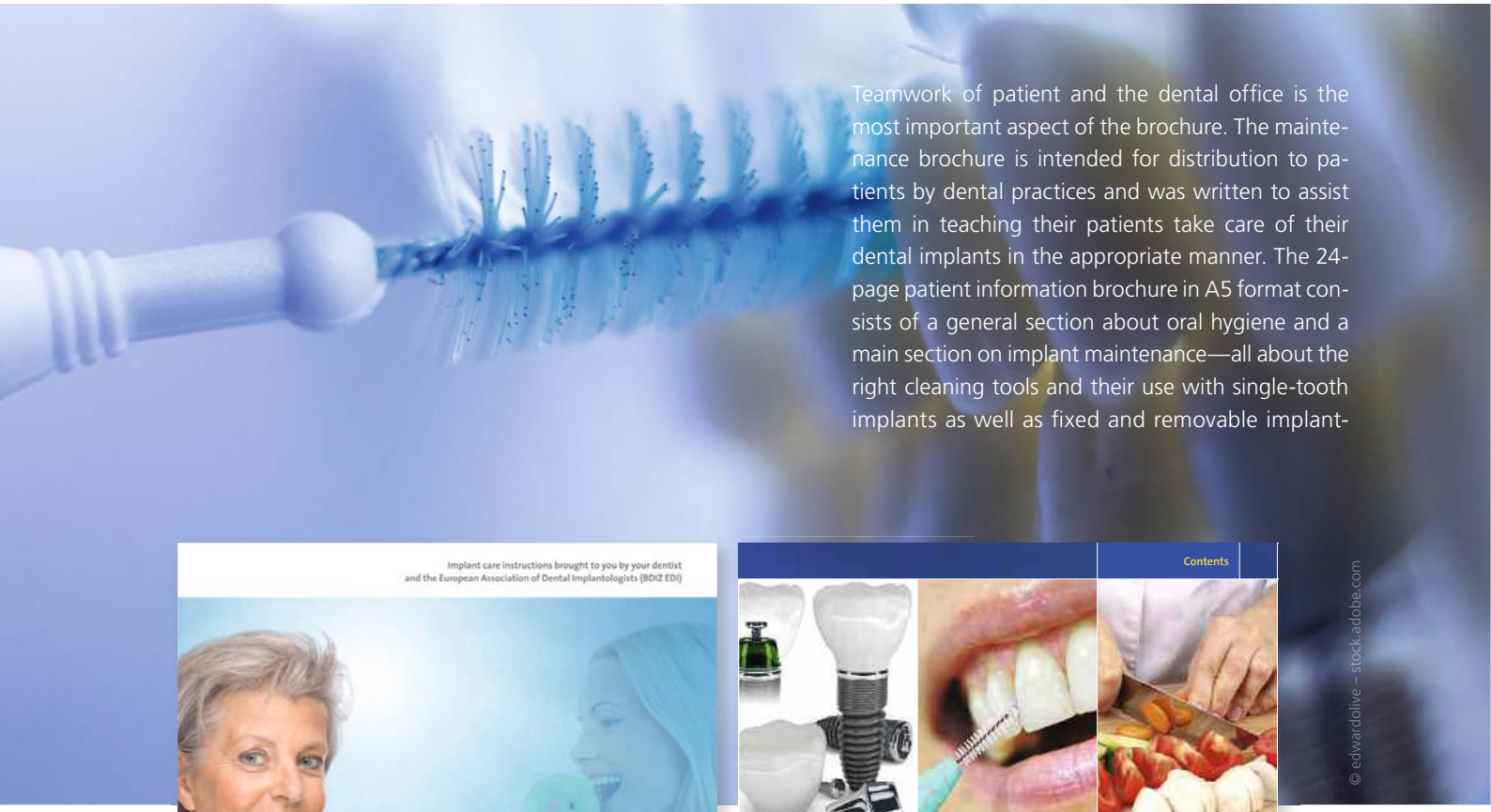
Bibliographical note

BDIZ Quality Guideline for Implantology. Updated March 2019. 17 A4 pages and cover. With a description of six quality criteria and five evaluation criteria and an overview of categories A+ to C.
English version available for download from https://bdizedi.org/en/quality-guidelines.

Implant care instructions brochure for patients

Implant maintenance is a team effort

The European Association of Dental Implantologists (BDIZ EDI) has published an English edition of its implant maintenance brochure. In easy-to-understand language, the brochure entitled "Implants—Long-lasting implants for long-lasting beauty" offers well-illustrated instructions and general information about oral health.



Teamwork of patient and the dental office is the most important aspect of the brochure. The maintenance brochure is intended for distribution to patients by dental practices and was written to assist them in teaching their patients take care of their dental implants in the appropriate manner. The 24-page patient information brochure in A5 format consists of a general section about oral hygiene and a main section on implant maintenance—all about the right cleaning tools and their use with single-tooth implants as well as fixed and removable implant-

supported restorations. "Good to know" provides background information on choosing the right toothbrush and using the proper brushing technique, describes the process of professional tooth cleaning and educates readers about risk factors. A checklist intends to alert implant patients to possible changes in the mouth and around the implant. This is the first English edition of the brochure, which has been completely redesigned with large images and short texts in easy language that patients can understand. The preface states: "It is up to you to ensure careful oral hygiene, and this is a prerequisite for a long implant life. Teamwork is of the essence!"

AWU

Bibliography

Implant care brochure of BDIZ EDI for patients
Implants—Long-lasting implants for long-lasting beauty

A5 format, 24 pages, 32 images
Prize: €1.50 + VAT + shipping (minimum order: 10)

Contact BDIZ EDI in Munich/Germany
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Fax: +49 89 72069-889

Europe Ticker +++

Study by the German Cancer Research Centre (DKFZ)

Can vitamin D help against cancer?

A study from the German Cancer Research Centre (DKFZ) in Heidelberg has provided new insights into the relationship between vitamin D and cancer. The researchers found that vitamin D supplements may have a direct effect on mortality from serious cancer. According to this study, the intake of additional vitamin D may reduce cancer mortality, the DKFZ reports. The possible effects of vitamin D supplementation on the development and progression of cancer have already been investigated in several studies. In 2021, the DKFZ researchers analysed five trials. The results at the time were promising: based on a projection model, the mortality rate could be reduced by as much as 13 per cent. This would prevent the death of around 30,000 cancer patients in Germany alone. In the latest meta-analysis, the DKFZ team evaluated 14 trials of the highest quality level. The results were published in *Ageing Research Reviews* in 2023.

Source: DKFZ, Germany

Results of a British study

Teeth can preserve antibodies for centuries

Teeth can apparently keep antibodies intact for centuries. Scientists hope this will allow them to study the history of infectious diseases. In the latest study from the University of Nottingham and University College London, scientists have found that antibodies extracted from 800-year-old medieval human teeth are stable and can still recognise viral proteins. The antibodies still showed immunoreactivity against the (modern) Epstein-Barr virus. Study leader Prof. Robert Layheld and his team expanded the study of ancient proteins, known as palaeoproteomics. This allows experts to analyse how human antibody responses have evolved throughout history. For example, palaeoproteomics has already been used to recover and identify ancient proteins from the 1.7-million-year-old tooth enamel of an ancient rhinoceros.

Source: zm, Germany

The EU Commission has new plans

Digitisation of the yellow vaccination pass

The European Commission has confirmed plans to digitise the World Health Organization's (WHO) yellow vaccination pass. This is part of a WHO global digital health certification network based on the EU's digital vaccination records from the COVID-19 pandemic, wrote Commissioner for Justice Didier Reynders and Commissioner for Health Stella Kyriakides. In June, the Brussels-based agency and the World Health Organization had announced a digital health partnership.
The WHO is implementing the certification network "to strengthen global preparedness against growing health threats", the Commission said at the time. To do this, WHO wants to adopt the system behind the EU vaccination or recovery certificates, including their principles and technology. "In this way, we will be able to respond more quickly when a new health threat emerges", the commissioners wrote.

Source: Die Zeit, Germany

Marketing of unhealthy foods

Norway bans advertising to children

In early June, Norway decided to ban advertising of unhealthy foods and beverages to children under 18, effective in 2024. The Norwegian Dental Association (NDA) describes how the law came about: The global trend towards increased obesity can also be felt in Norway, where one in five children is overweight or obese. "The health risks connected to this are finally being seen by our politicians, and we are very proud that Norway seems to be the first country to ban this marketing directed at children up to 18 years, as is the recommendation from the United Nations (UN) and the World Health Organization (WHO)," said a speaker for the NDA in an interview to the World Federation of Dentists (FDI). "Over the past few years, we have seen an increased commercialisation of unhealthy food and drinks targeting adolescents and children. This pressure is mainly directed through social media channels." Channels where parents have little insight and little control. The new legislation could regulate and restrict this type of marketing.

Source: NDA, FDI

Dental care compatible with tourism

Portugal focuses on dental tourism

Dentistry is becoming the declared focus of medical tourism in Portugal. This is according to the Portuguese Dental Association, which encourages local dental clinics to become active in this field. "The 'Medical Tourism in Portugal' project aims to significantly increase the provision of medical services abroad and strengthen our country as a medical tourism destination of high clinical and technological quality," the Portuguese Dental Association (Ordem dos Médicos Dentistas, OMD) announced at the end of June. After initially focusing on cardiology, dermatology, oncology, rehabilitation, plastic surgery, otolaryngolgy and orthopaedics, it is now time to move on to dentistry. By 2025, Health Cluster Portugal (HCP) plans to allocate €100 million per year to the project. Together with the Tourism Board, the Chamber of Foreign Trade and the Association of Private Hospitals, HCP has created a portal to promote the clinics abroad.

Source: OMD, Germany

Clinical research

Many results published late or not at all

Clinical trials are often very demanding, can cost millions of euros involve human subjects. Ethical standards such as the Declaration of Helsinki of the World Medical Association require that the results be published. A team from the Berlin Institute of Health (BIH), based at the Charité hospital in Berlin, Germany, has now published a web-based analysis in *PLOS Medicine* with data on trials involving 35 university hospitals—available since March at quest-cttd.bihealth.org. It included trials completed between 2009 and 2017. "The universities themselves have no idea what their situation looks like across all trials," said Daniel Strech of the BIH. Universities have become increasingly aware after they had to realise that they sometimes fail to meet their legal obligations; medical companies had long been doing much better at this.

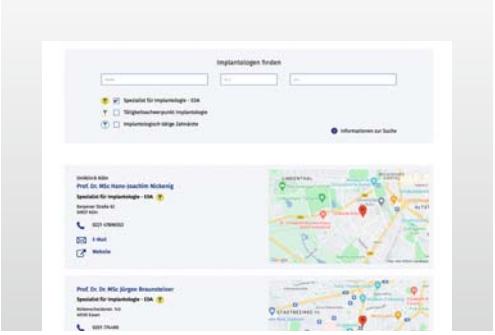
The researchers wrote that transparency has increased over the years studied. "We have not found any negative developments," said Strech. According to the analysis, the university hospitals in Würzburg, Rostock and Saarland are leading in terms of the proportion of results published within five years of the end of the study. The hospitals in Dresden, Erlangen, Halle (Saale) and Aachen, where only about 50 to 60 per cent of the studies were published, came last. A spokesperson for Aachen University Hospital said that questions about transparency were justified: "The medical faculty encourages all researchers to publish results, and the ethics committee also reminds them to do so." In some cases, publications had taken a long time, and some studies had to be stopped because not enough volunteers could be recruited. According to the University of Erlangen-Nürnberg, some of the study results were published later.

Publication is a scientific and ethical imperative, said a spokesperson for the Technical University of Dresden. All 18 clinical ongoing trials had the "goal of publication". But this takes time. Many studies would not be accepted at first, then new publication channels would have to be found. For trials on drugs and medical devices, where the standards are stricter, there are work instructions, for example, on how to write reports, he said. In addition, the local ethics committee requires researchers to submit a report on the results.

Source: Frankfurter Allgemeine Zeitung, Germany

Did you ever know…

…that the BDIZ EDI
and the law firm of their legal counsel Prof. Thomas Ratajczak have filed a lawsuit with the Administrative Court of Berlin? Six dentists will sue the state for violating Section 15 of the German Dentistry Act (Zahnärztegesetz, ZHG) and thus for failing to balance the legitimate interests of dentists with those of their patients, after the Federal Minister of Health failed to respond to the BDIZ EDI legal counsel's inquiry regarding unequal treatment in fee schedules.



…that dentists and members of the BDIZ EDI
can register for the implantologist search engine for patients with their Focus of Professional Activities: Oral Implantology ("Tätigkeitsschwerpunkt", TSP) and/or with a successfully completed examination for European Specialist in Implantology (EDA)? For a small fee, the practice's contact information will be published in the system where it can be searched for and found by patients.

…that the BDIZ EDI
participates in the development of dental guidelines if and when oral implantology or related disciplines are involved? The BDIZ EDI takes part in the guideline work of the DGZMK and other professional associations and plays a leading role in the European Consensus Conference on Implantology. Each year, a guideline is produced on a current topic in implantology with recommendations for action.

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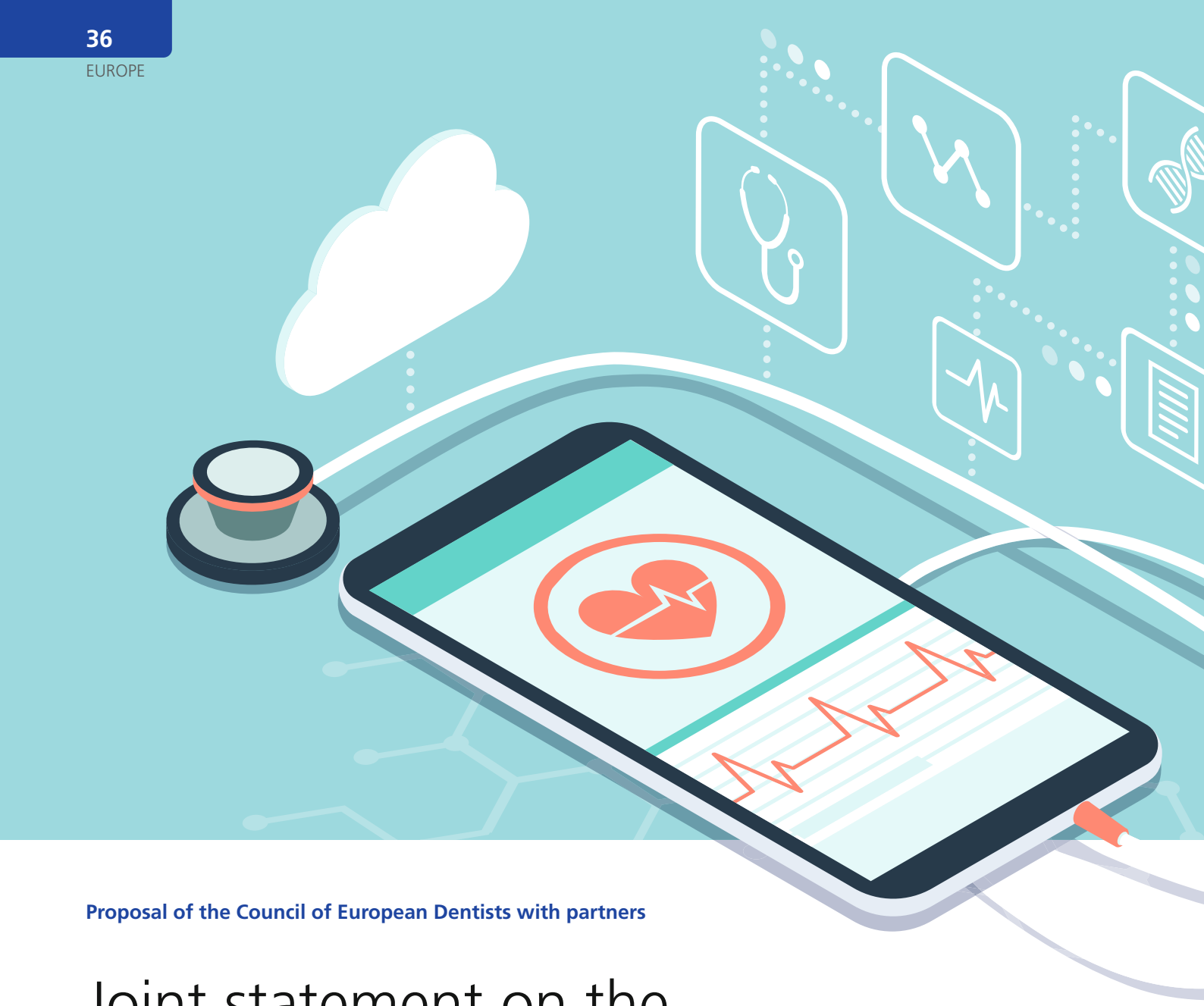

Proposal of the Council of European Dentists with partners

Joint statement on the European Health Data Space

In a joint statement, five healthcare professions to include doctors, dentists, community pharmacists, hospitals and nurses support amendments to the European Health Data Space (EHDS), which safeguard confidentiality and ethical duties, propose clarity on medical liability, reduce administrative burdens and offer appropriate compensation for the high costs of digitalisation.

As co-legislators continue their negotiations on the European Commission's Proposal for a Regulation on the European Health Data Space (EHDS), healthcare professions appeal for wise provisions that ensure a smooth transition for the workforce and feasible implementation for professional practice. For the EHDS to be truly workable for healthcare professions longer implementation timelines will be required.

The Council of European Dentists (CED), the Standing Committee of European Doctors (CPME), the European Federation of Nurses Association (EFN), the European Hospital and Healthcare Federation (HOPE) and the Pharmaceutical Group of the European Union (PGEU) call upon the co-legislators of the European Health Data Space to respect higher ethical principles of patient confidentiality and professional secrecy, to exclude healthcare professionals from providing data again for secondary use, to bring clarity and certainty for liability of healthcare professionals in the electronic health record (EHR), to provide financial compensation for digitisation costs.

- **To respect ethical principles of patient confidentiality and professional secrecy.**

  Providing data for secondary use must never breach patient confidentiality and professional secrecy. The data sharing obligations in secondary use must not endanger the patient–healthcare professional relationship. The unique and irreplaceable asset of communicating in confidence will be rendered trivial, and the fundamental right of access to healthcare will be in jeopardy if these principles are not respected. Patients may become reluctant to seek treatment for fear that their condition will be disclosed to others. There must be no risk of exposing patients' most sensitive data to unknown third parties, including for commercial purposes. CED, CPME, EFN, HOPE and PGEU support an explicit reference to the ethical principle of respecting patient confidentiality and professional secrecy in the draft regulation.

- **To exclude healthcare professionals from providing data again for secondary use.**

  With the scarcity of healthcare professionals, they should not be burdened with administrative tasks that take away patient time and experience. This is especially relevant since the burden of compliance with the EHDS would require serious efforts, in particular from smaller healthcare practices. In some instances, this may even lead to closing of some practices and early retirement. Healthcare providers' obligations should be limited to the primary use of data, meaning prevention, diagnosis, treatment, and care, avoiding duplication of work. CED, CPME, EFN, HOPE and PGEU support amendments 1217, 1218, 1219 and 1220, which partly reflect these concerns by excluding small enterprises in the context of healthcare professionals practice and pharmacies.

- **To bring clarity and certainty for liability of healthcare professionals in the electronic health record.**

  The draft regulation needs to specify what healthcare professionals are required to see in the EHR in a short time frame without fear of being prosecuted for negligence. Depending on the medical history, an EHR can reach thousands of electronic pages. Similarly, the draft regulation needs to provide answers for cases when patients block certain information from healthcare professionals, on the legal value of "patient provided data" in the file, and on who is competent to rectify a clinical fact in the file and how.

  CED, CPME, EFN, HOPE and PGEU support amendments 232, 655, 679, 680, 683 and 684, which address liability of healthcare professionals. It should be clear that healthcare professionals cannot be responsible for the quality of the data in the EHR when these data are originally stored by another healthcare professional. Healthcare professionals can only be responsible for the data they have collected and inserted themselves. CED, CPME, EFN, HOPE and PGEU support amendments 216, 220, 221, 654, 656, 660 and 662 on the rectification of clinical facts. It should be further clarified that healthcare professionals are only required to review the "patient summary". "Patient provided data" should be a separate electronic health data category in Annex I pursuant to amendment 2137.

- **To provide financial compensation for digitisation costs.**

  The costs of digitalisation should not be passed on to healthcare professionals, hospitals and healthcare services. Member States should foresee specific budget lines for direct financial support to healthcare professionals, hospitals and healthcare services willing to connect to MyHealth@EU and/or adapt to new specifications of registering electronic health data. Digitalisation should not increase administrative work for healthcare professionals, hospitals and healthcare services, and should be voluntary.

  CED, CPME, EFN, HOPE and PGEU support amendments 3, 8, 22, 200, which recognise the need for additional funding. It needs to be further ensured that Member States directly apply the funding for healthcare professionals, hospitals and healthcare services who are to be connected to MyHealth@EU.

Source: CED

EU Commission proposes AI Liability Directive

Damage caused by AI: Practitioners' liability

The European Commission published its "Proposal for a Directive on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive)" 2022/0303/COD on 28 September 2022. It includes liability rules for damage caused by AI.

The proposal should be seen in the context of the "Proposal for a Regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)" through which the EU intends to take an international lead with regard to holistic regulation of AI. Against the background of the growing use of AI in medicine, this article, in addition to describing the planned regulations, addresses the resulting liability consequences for dentists/physicians who use AI systems in the context of their treatments in particular.

I. Proposal for a Directive on AI liability

1. Background and objectives

Under current law, there are no liability regimes in the member states that explicitly cover damage caused by AI systems. Rather, all liability regimes refer to damage caused by human action or omission.

The Commission states in the explanatory memorandum to the proposal that, in particular, the existing fault-based liability rules are inappropriate for handling liability claims for damage caused by AI-enabled products and services, and notes that it is currently difficult for companies to predict how the existing liability rules will be applied by the courts. Assessing and insuring one's own liability risks is therefore currently an almost impossible task for providers and users of AI systems. It is therefore no surprise that liability is one of the top three obstacles to the use of AI by European companies and thus represents a real obstacle to innovation.

On the other hand, potential victims of AI-related damage, especially against the background of the so-called "black box" effect, are currently faced with the problem of having to prove fault and causality in liability proceedings.

Taking into account these diverging interests, the European Commission intends its proposal for an AI Liability Directive to achieve the following objectives:

- Promotion of the rollout of trustworthy AI to harvest its full benefits for the internal market
- Equivalent protection for victims of damage caused by AI as for victims of damage caused by products in general
- Reduction of legal uncertainty of companies developing or using AI regarding their potential exposure to liability
- Prevention of the emergence of fragmented AI-specific adaptations of national civil liability laws.

2. Regulatory content

The published proposal was originally based on three policy options, which the Commission compared in a multi-criteria analysis, taking into account their effectiveness, efficiency, coherence and proportionality.

Policy option 1 provided "three measures to ease the burden of proof for victims seeking to prove their liability claims." Policy option 2 went beyond option 1 by providing for "harmonising strict liability rules for AI use cases with a particular risk profile, coupled with mandatory insurance" in addition to the measures in option 1.

Ultimately, the phased approach of option 3 was chosen, combining the first two options. This option now provides that measures to ease the burden of proof for victims seeking to prove their liability claims will be introduced first (option 1). After five years, a review of the impact of the measures on the achievement of the objectives pursued by the directive is then to be carried out (Article 5). If, in the opinion of the European Commission, these objectives are not achieved, the additional measures of option 2, i.e. the introduction of strict liability and compulsory insurance, are to be implemented in a further step if necessary.

Thus, the proposed directive in its current version does not define any separate liability claims. Instead, it contents itself with regulations on the disclosure of evidence as well as presumptions of fault and causality in order to make it easier for the (potential) claimant to provide evidence when asserting a claim for damages under national law.

Due to the extensive scope of the proposed directive, only the most important regulations will be presented below.

Pursuant to Article 1 (2), the proposed directive claims to apply to non-contractual fault-based civil law claims for damages in respect of harm caused by an AI system. Thus, neither contractual nor strict liability claims for damages nor, for example, criminal liability are covered. In addition, the damage must have been caused directly by an AI system or its output.

Article 3 (1) provides for a claim for information by the (potential) claimant, in particular against the provider or the user, for disclosure of relevant evidence concerning a specific high-risk AI system suspected of having caused damage.

The consequences of refusal to disclose the evidence are far-reaching.

Thus, according to Article 3 (5), breach of the duty of care and thus a fault of the provider or user is automatically (rebuttably) presumed. However, this breach of the duty of care (which may be presumed pursuant to Article 3 [5]) is also the first prerequisite for the (rebuttable) presumption of causality between the fault (= breach of the duty of care) of the provider/user and the output of the AI system as per Article 4 (1), so that the non-disclosure of the evidence triggers or at least favours a chain reaction of legal consequences. Further requirements for the presumption of causality of Article 4 include that the fault has influenced the AI result or its absence as well as the causality (to be proven by the claimant) between the output of the AI system and the damage.

The breach of the duty of care required for the presumption of causality under Article 4 (1) is specified in paragraphs 2 and 3 for providers and users of high-risk AI systems by establishing a link to the obligations of these addressees under the planned Artificial Intelligence Act.

Accordingly, in accordance with Article 4 (3), users must fulfil their obligation to use or monitor the AI system in accordance with the attached instructions for use or, if necessary, to suspend or interrupt its use (according to Article 29 of the AI Act) and/or apply to the AI system only input data that are subject to their control and that correspond to the intended purpose of the system [according to Article 29 (3) of the Artificial Intelligence Act]. In this way, the proposed directive creates incentives to comply with the due diligence obligations provided for in the Artificial Intelligence Act.

II. Implications for the dental and medical professions

So what are the specific consequences of the proposed directive for practitioners who use AI systems in the course of treatment?

The good news first: The proposed directive in its current version does not (yet) provide for strict liability regardless of fault, so that damage caused by an AI system does not automatically lead to liability on the part of the practitioner. In addition, liability continues to be gov-

erned, in principle, by the national law of the respective member state.

Nevertheless, practitioners may in principle be covered by the scope of the planned directive, with the result that potentially injured patients may demand the disclosure of evidence in order to be able to substantiate a claim for damages. Furthermore, the above-mentioned presumptions of fault and causality may apply, which the practitioner can and must refute to avoid being exposed to a claim for damages.

The primary addressees of the proposed directive are providers and users of high-risk AI systems. Article 2 (3) of the proposed directive refers to Article 3 (4) of the Artificial Intelligence Act for the definition of "user". Here, the term "user" means "any natural or legal person, public authority, agency or other body using an AI system under its authority, except where the AI system is used in the course of a personal non-professional activity." Physicians, but also hospitals, are thus to be regarded as users within the meaning of the proposed directive. Also, with regard to the definition of high-risk AI systems, Article 2 (2) of the proposed directive refers to Article 6 of the Artificial Intelligence Law, which contains the requirements for classifying AI systems as high-risk. This Article refers to Annex II of the Artificial Intelligence Act, whose No. 11 in turn refers to Regulation (EU) 2017/745 of 5 April 2017 concerning medical devices. Accordingly, AI medical devices are likely to be classified as high-risk AI systems within the meaning of the proposed directive.

However, this fundamental applicability of the directive to dental/medical treatments using AI medical devices is subject to a significant restriction in Article 1 (2) and Article 2 No. 5, in that it is a prerequisite that the relevant harm must be caused by the AI system. Recital 15 of the proposed directive specifies that "there is no need to cover liability claims when the damage is caused by a human assessment followed by a human act or omission, while the AI system only provided information or advice which was taken into account by the relevant human actor. In the latter case, it is possible to trace back the damage to a human act or omission [...], and thereby establishing causality is not more difficult than in situations where an AI system is not involved."

If the AI system only provides the practitioner with information regarding a possible diagnosis/treatment, on which the practitioner still has to make an independent decision, the directive does not apply. Since there are hardly any AI medical devices in use at present that could directly cause harm, the significance of the guideline for the dental/medical professions would be quite low, at least at present.

However, even in the case of future use of AI-capable medical devices that directly cause damage, at least the presumption of causality in Article 4 (1) is unlikely to be of decisive importance, since the user's duties of care are not as extensive as those of the provider. Thus, practitioners who use an AI system in accordance with its instructions for use and only provide it with data in accordance with the system's intended purpose will largely escape liability due to the lack of a breach of the duty of care (cf. Article 4 [3]).

III. Conclusion

In conclusion, the proposed directive on AI liability in its current version does not imply any groundbreaking changes for the practitioners' liability, as no new liability claims are defined. Rather the proposal is concerned with alleviating the burden of proof for potential claimants, who are invariably likely to face (evidentiary) difficulties when attempting to enforce a claim for damages, given the lack of transparency of AI systems. To remedy the problem, the draft provides for a right to information and presumptions of fault and causation against the user of a high-risk AI system. A dental/medical practitioner may therefore well become an addressee. However, a prerequisite would be that the damage was directly caused by an autonomous AI result or its absence. However, at present AI medical devices hardly cause any direct damage; rather, practitioners would regularly make decisions on their own responsibility based on the output of an AI, so there is little change for the time being in terms of the practitioner's liability for any breach of duty of care. In this way, the situation is comparable to the use of classic medical devices.

The outcome of the planned review of the effectiveness of the directive five years after its introduction will be eagerly awaited. Failure to achieve the objectives of the directive (in particular when it comes to closing liability gaps) could result in strict liability for operators of AI systems, which would of course have far-reaching consequences for the dental and medical professions. Even though the directive will probably not be transposed into national law in the member states until 2026 at the earliest (cf. Article 7 [1]), it is advisable to keep a critical eye on the legislative process.

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EFP launched campaign

Perio & Family Doctors

The European Federation of Periodontology (EFP) recently released the outreach campaign "Perio & Family Doctors", aiming to raise awareness of how a closer collaboration between dentists and family physicians can mean a huge leap forward when treating diabetes, cardiovascular diseases, and chronic respiratory diseases.

An ongoing and open exchange between oral-health providers and family physicians can effectively improve the quality of their patients' treatment and well-being, and in certain cases even save lives, the EFP says. The closer the collaboration between dental and general practitioners, the bigger the improvement in their patients' treatment standards, particularly in relation to serious chronic conditions such as diabetes, and cardiovascular and respiratory diseases. Family doctors should be informed about gum diseases and their consequences, while oral health professionals should be made aware of the significance of noncommunicable diseases (NCDs) and their associated risk factors. This lies at the core of the new outreach campaign Perio & Family Doctors, an initiative jointly developed by the EFP (European Federation of Periodontology) and WONCA Europe (European branch of the World Organisation of Family Doctors).

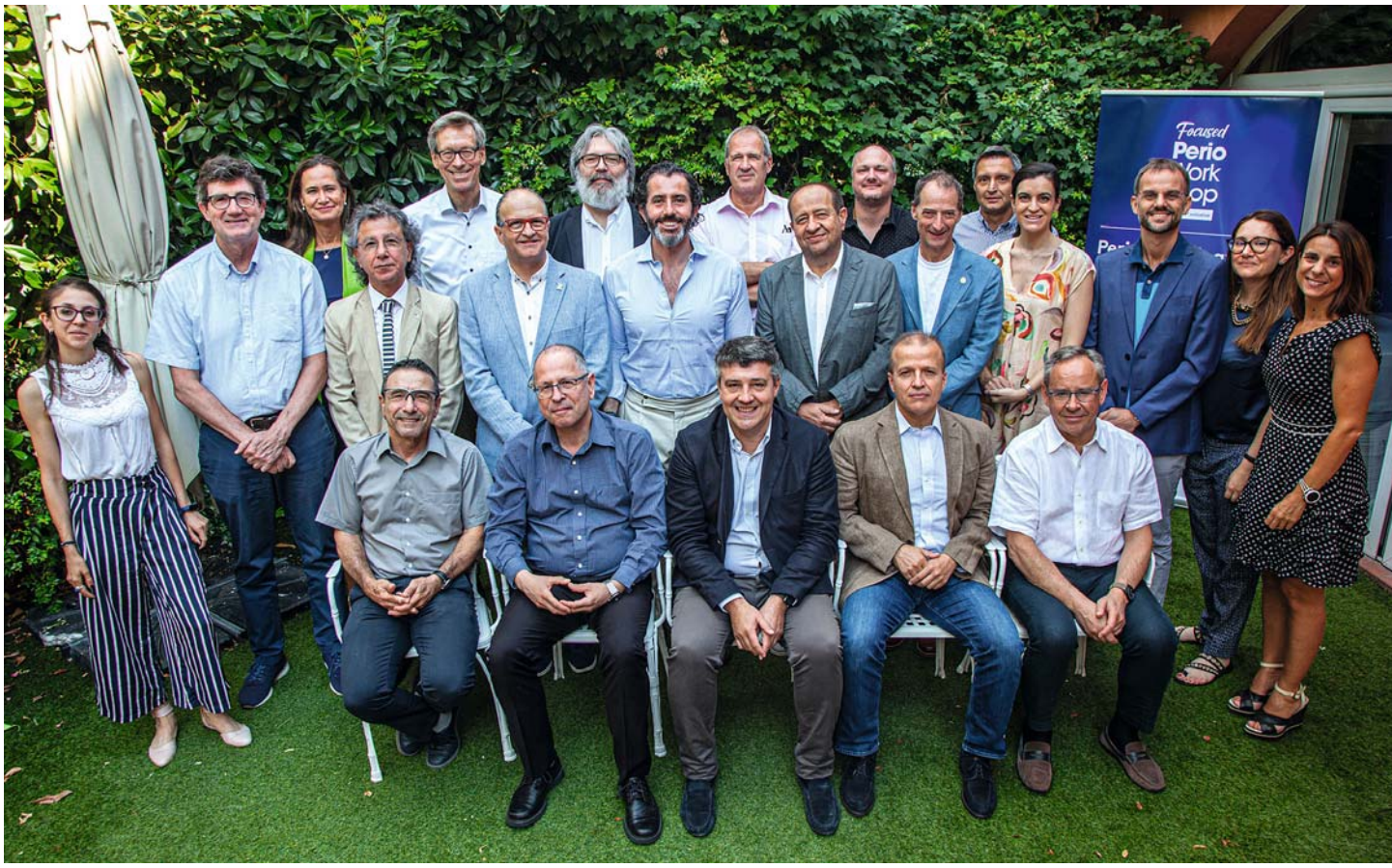
In 2022, 18 experts from the EFP and WONCA Europe examined the role of family physicians and the oral-health team and formulated a series of recommendations for both groups of clinicians. Their conclusions were published in a scientific consensus report published earlier this year in the EFP-edited *Journal of Clinical Periodontology*.

Tackling and managing systematic health conditions

"This groundbreaking campaign marks a giant leap forward in enlightening family doctors, periodontists, and other oral health providers about the potential for closer collaboration. Together, we can proactively tackle and manage prevalent systemic health conditions that impact patients worldwide, such as cardiovascular disease (CVD), hypertension, obesity, diabetes, smoking, and hyperlipidaemia," explains Darko Božić, EFP President. "Our campaign is also addressed to the general public, as patients should be aware of the advantages and benefits of good oral health," Prof. Božić indicates. "In light of our recent findings, it is imperative to recognise that periodontitis transcends its localised origins in the oropharynx," highlights Shlomo Vinker, President of WONCA Europe. "Instead, it emerges as a condition intimately intertwined with broader systemic disease states. To address this paradigm shift, the collaboration between dentists and family doctors becomes paramount. Together, we must institute proactive strategies for the early identification of periodontitis within primary care centers and, conversely, of cardiovascular diseases and diabetes within dental settings."

Prof. Vinker adds: "Strengthening the bond between oral health professionals and family doctors is instrumental not only in the early detection and management of NCDs but also in fostering healthier lifestyles.

The development and evaluation of pathways for early case detection of periodontitis in family medicine practices and NCDs in dental practices marks the next frontier in our collective pursuit of comprehensive healthcare." The Perio & Family Doctors campaign materials include infographics and other digital content available at the EFP website at efp.org/periofamilydoctors/. "Our aim with these materials is to make visual and intuitive the core messages of the consensus report, which thoroughly examined the latest scientific evidence available supporting that periodontal disease, in particular



In 2022, Experts from the EFP and partners examined the role of family physicians and oral health teams and formulated some recommendations.

periodontitis or chronic inflammation of the gums, is independently associated with cardiovascular diseases, diabetes mellitus, and respiratory diseases, such as chronic obstructive pulmonary disease, sleep apnoea, and COVID-19 complications," explains Prof. Anton Sculean, chair of the EFP's projects committee.

Who they are

The EFP (European Federation of Periodontology, www.efp.org) is a non-profit organisation dedicated to promoting awareness of periodontal science and the importance of gum health for oral-health professionals and the public. Its guiding vision is "Periodontal health for a better life". Founded in 1991, the EFP is a federation of 38 national periodontal societies representing more than 16,000 periodontists, dentists, researchers, and oral-health professionals in Europe and around the world. It organises events and campaigns grounded in evidence-based science in periodontal and oral health, including EuroPerio (the world's leading congress in periodontology and implant dentistry), Perio Master Clinic, and Perio Workshop. Gum Health Day, its awareness campaign for the public celebrated annually on 12 May, brings key messages on gum health to millions of people across the world. The EFP also organises workshops and outreach campaigns with its partners: past projects have covered the relationship between periodontal disease and diabetes, cardiovascular disease, and caries, as well as women's oral health during pregnancy. The extensive list of EFP publications include the *Journal of Clinical Periodontology*, the research summary *JCP Digest*, and the online magazine *Perio Insight*, which offers expert views on periodontal science and clinical practice. The federation's work in education is also highly significant, notably its accredited university-based programmes for postgraduate education in periodontology and implant dentistry. The EFP has no professional or commercial agenda.

Source: EFP

More information

Association between periodontal diseases and cardiovascular diseases, diabetes and respiratory diseases: consensus report of the joint workshop by the EFP and WONCA Europe" available at:

https:// doi.org/ 10.1111/jcpe. 13807

International Congress of USSI EDI

This is Novi Sad…

The Serbian partner of the BDIZ EDI, the Association of Dental Implantologists of Serbia (USSI EDI), traditionally organises an international congress twice a year. Due to the COVID-19 pandemic, the event was held online and was sponsored by the Provincial Secretariat for Health.

The 10th International Congress of the USSI EDI took place on 9 and 10 December 2022 and was broadcasted online from the USSI EDI headquarters. Chairman of the organising committee was USSI EDI Vice President Dr Zoran Marjanović. The host was Prof. Dr Vojislav Letić, Secretary of USSI EDI.

At the beginning of the congress, the President of the BDIZ EDI, Christian Berger (Kempten, Germany), held a lecture on the subject of "Consent recommendations for dental practices to ensure long-term success in implantology". Berger is a good friend and supporter of the USSI EDI. In 2010 he was awarded for his efforts towards the German-Serbian friendship by the Ministry of the Serbian Diaspora.

The following list introduces the speakers of the congress, the topics of their lectures and presents short information about their vita.

Lectures on Friday

Eimear O'Connell, BDS, MFGDP, DipImpDent RCS Ed, FFGDP (Edinburgh, Scotland), President of ADI UK

Digital tools for implant dentistry

Dr O'Connell, born in Ireland, is a senior dentist at Bite Dentistry, an award-winning general dental practice based in Edinburgh.

The organising team with Dr Zoran Marjanovic (sitting, left).

Giulio Rasperini, DDS, MS (Milan, Italy)

The total oral implant care concept

Prof. Dr Giulio Rasperini specialised in orthodontics after completing his studies in dentistry. He is an active member of the Italian Society of Periodontology, the European Academy of Aesthetic Dentistry, and a Fellow of the ITI. He is a member of the editorial boards of several publications. Rasperini is Associate Professor of Periodontology at the Department of Biomedical, Surgical and Dental Sciences of the University of Milan and runs a private practice specialising in periodontology and implant therapy.

Vikas Gowd, BDS, DDS Periodontology (Hyderabad, India)

Immediate implants in the molar region

Dr Vikas Gowd is a specialist in Oral Implantology, Prosthetics, Aesthetic Dentistry and Oral Surgery. In Hyderabad, he is very involved in the training of dentists in the field of implantology.

Stevo Matijević, MSc, PhD, Oral Surgeon (Belgrade, Serbia)

Efficiency of antibiotic colitis therapy against Saccharomyces boulardii

Dr Stevo Matijević is an Associate Professor at the Department of Oral Surgery at the Military Medical Academy in Belgrade.

Nikola Petričević, DDS, MSc, PhD (Zagreb, Croatia)

Did digital technologies overpower analogue dentistry?

Dr Nikola Petričević (born in Split, Croatia) is a specialist in prosthetics and implantology. He is Assistant Professor at the Clinic of Prosthetics at the Department of Dentistry, at University of Zagreb. As a specialist in prosthetics and expert in implantology, Dr Petričević regularly participates in national and international conferences on implantology and prosthetics.

Siniša Mirković, DDS, MSc, PhD (Novi Sad, Serbia)

Odontogenic infections

Prof. Dr Siniša Mirković (born in Novi Sad) was head of the Department of Oral Surgery at the Dental Clinic of Vojvodina from 2000 to 2008. Since 2015, he has been a full professor of oral surgery at the Faculty of Medicine in Novi Sad. He has published dozens of articles in national and international oral surgery and implantology journals, as well as a monograph with the title *Mini Dental Implants* and various chapters in other monographs.

Lectures on Saturday

David Alfaiate, DDS, MSc Orthodontics (Porto, Portugal)

Implant complications and reparative treatment: clinical case presentations

Dr David Alfaiate is Director of the Department of Surgery and Oral Rehabilitation at the CIRO Training and Research Centre. After studying dentistry at the Higher Institute of Health Sciences - North (ISCS-N) and postgraduate studies at the Department of Stomatology of the Portuguese Institute of Oncology in Porto (IPO), he trained academically in oral pathology, oral and maxillofacial surgery, and rehabilitation.

Hakan Özyuvacı, DDS, PhD (Istanbul, Turkey)

The importance of the maxillary sinus

Prof. Dr Hakan Özyuvacı (born in Istanbul) began his PhD at the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Istanbul University, after completing his studies in 1987 and graduating in 1992. In 1996 he became Associate Professor. Since 2008, he is representing Turkey in the European Committee of the BDIZ EDI.

Thomas Fortin, DDS, PhD (Bourgoin Jallieu, France)

Immediate or late implant placement in the anterior region?

Prof. Dr Thomas Fortin studied dentistry in Lyon and obtained his PhD in oral surgery at the same university in 1995. In his private practice, he specialises in procedures such as dental implants, image-guided surgery, and oral surgery. Fortin is professor for oral surgery and director of the department of Oral Surgery at the University of Lyon.

Peter Fairbairn, BDS, DDS (London, England)

Genuine bone regeneration with new synthetic substances

Prof. Dr Peter Fairbairn is Visiting Professor at the University of Detroit Mercy School of Dentistry (Michigan, USA) and Education Director of the Association of Dental Implantology (UK) as well as former President of the London Dental Fellowship. Since 1991 he is implanting at the Scarsdale Dental Clinic in West London and has successfully performed over 6,500 tissue transplants with synthetic materials. He has published numerous articles, conducted public health studies (clinical and animal) and written chapters in two books. In the last ten years he has held lectures in over 30 countries worldwide.

Bojan Jovičić, DDS, MSc, PhD (Novi Sad, Serbia)

Soft-tissue recession of the peri-implant mucosa

Dr Bojan Jovičić (born in Novi Sad) graduated from the Faculty of Dentistry at the University of Novi Sad in 1994. In 2000, he obtained his specialisation in Periodontology and Oral Medicine at the University of Belgrade, his MSc in Dental Sciences in 2008, and then his PhD in 2012. He is author of several scientific papers.

Kirill Arturovich Polyakov, DDS, MD, PhD (Montenegro)

Bisphosphonate-induced osteonecrosis

Dr Kirill Arturovich Polyakov received his academic degrees from the 1st Moscow State Medical University "Ivan M. Sechenov". He is Associate Professor and Director of the Research Department for New Technologies in Oral and Maxillofacial Surgery at the same university.

World Dental Congress and FDI General Assembly in Sydney

New President of the FDI

On the occasion of the 2023 World Dental Congress, FDI held its parliament meetings to make decisions on key matters by voting members of the General Assembly and Council.

The famous Harbour Bridge of Sydney during night-time.

The General Assembly (GA) is the supreme legislative and governing body of FDI. The GA gathers once a year and sets FDI policies, the strategic plan, missions and aims, and monitors progress on their achievement.

With the return of an in-person World Dental Congress, FDI also held its parliament meetings—an integral part of the organisation in Sydney, Australia. At the GA held on 26 September, voting members and council made significant decisions through their votes. This included the appointment of council and committee members during the GA and council elections, approval of the 2023 policy statements, approval of the FDI organisational strategy, as well as the approval of the FDI position on free sugars.

Council members

President-Elect—**Assist. Prof. Nikolai Sharkov**, Bulgaria
Treasurer—**Prof. Young Guk Park**, Republic of Korea
Member—**Prof. Dr Hiroshi Ogawa**, Japan

Science committee

Chair—**Prof. Jeffrey Platt**, United States of America
Member—**Dr Walter Lam Yu Hang**, Hong Kong SAR China

New policy statements

FDI policy statements, which detail FDI's position on issues of interest within the oral health community, are put together through consultation, discussion, and consensus among leading dental experts from around the world. This year, the GA adopted eight policy statements:

1. Collaboration between oral health professionals and other health professionals
2. Mental health and well-being for oral health professionals and dental students
3. Alternative direct restorative materials to dental amalgam
4. Tooth wear
5. Alcohol as a risk for oral health
6. Perinatal and infant oral health care
7. Social and commercial determinants of oral health
8. Oral health for healthy ageing

Sustainability Champions at the 2023 World Dental Congress

At a sustainability-dedicated symposium, FDI applauded the remarkable efforts of individuals and dental practices striving to improve their environmental footprint. Meet the Sustainability Champions.

The first-ever FDI Sustainability Awards have been presented at a session dedicated to Sustainability in Dentistry during the 2023 World Dental Congress in Sydney, Australia.

These awards aim to promote sustainability in dental practices and encourage individuals as well as dental teams to play an active role in reducing dentistry's environmental impact on our planet.

The Sustainability Award celebrates and rewards those who can demonstrate that they implemented sustainable initiatives within their dental practices. This year, winners in two categories were celebrated: Individual and Dental Practice. These awards are a recognition of their outstanding commitment of adopting best-practice measures to the overall sustainability of their dental practice.

In the individual category, the deserving winner is Ignacia Vial from Chile. FDI acknowledged her remarkable efforts to improve sustainability in dentistry by presenting her with a reward of CHF500. FDI wholeheartedly congratulates this Sustainability Champion for her dedication and hopes more individuals will follow in her footsteps

In the dental practice category, there are two winners, each receiving a reward of CHF1,000. The winners are Clinica Odontologica Alama/Odontoruteros from Chile, and Ars Salutaris from Croatia. "Congratulations to these dental practices for their commitment to implementing sustainable practices that contribute to reducing dentistry's environmental impact," said the jury.

Scientific programme along with dental exhibition at the Convention Center of Sydney.

World Oral Health Day campaign

The World Oral Health Day (WOHD) 2024–2026 campaign was officially launched during FDI's World Dental Congress, in Sydney.

World Oral Health Day (WOHD) is celebrated globally every year on 20 March. Its purpose: to empower people with the tools and knowledge to prevent and control oral diseases, which affect nearly 3.5 billion people worldwide. WOHD encourages people to look after their oral health by adopting a good oral hygiene routine and managing risk factors. Preserving oral health can help keep the mind and body healthy too, as well as protect against the spread of infections.

WOHD 2023 marked the culmination of the three-year "Be Proud of Your Mouth" campaign, which was launched in 2021 with the aim to inspire lasting and positive change by educating people on the vital role a healthy mouth plays in our lives. The campaign received an overwhelming response from people globally who actively participated in sharing the WOHD messages.

The newly adopted policy statements will be available for consultation on the FDI website soon.

Source: FDI

Certification as an EDA Expert in Implantology

Qualification for experienced implantologists

For many years, BDIZ EDI has been catering to experienced and well-versed oral implantologists by offering the certification exam for EDA Expert in Implantology. Jointly with the European Dental Association (EDA), BDIZ EDI regularly invites interested dentists to take the certification exam, which we would like to present in this article.

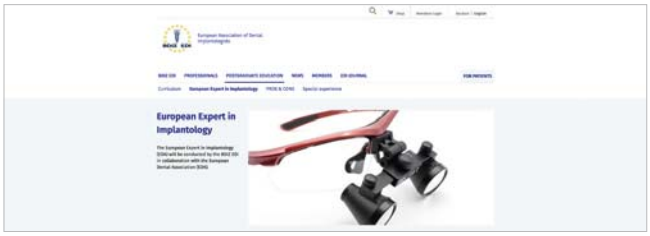
That quality is of paramount importance to BDIZ EDI is no secret. BDIZ EDI has demonstrated this in many different areas—legal and accounting, materials testing, postgraduate education, the annual Guidelines of the European Consensus Conference (EuCC) on current implantological issues and finally the qualification of court experts. BDIZ EDI also supports dental education with its Curriculum Implantology that introduces aspiring dentists and young implantologists to this dental specialty in eight well-organised modules.

Admission requirements for the certification exam

Certification as Expert in Implantology requires very good to excellent skills and knowledge. Candidates must meet the following admission requirements:

- 250 EDA-recognised continuing education/training hours in various sub-disciplines of implantology
- Submission of ten documented, independently performed implantological treatment cases
- At least five years of professional activity, primarily in the field of implantology.

Specific experience and primary activity in the field of implantology must be documented by at least 400 implants inserted and



150 implants restored within the past five years. Candidates who already obtained qualifications in oral implantology (e.g. from other professional societies) may submit the appropriate credentials with their application for certification as EDA Expert in Implantology.

The exam

Candidates meeting all the requirements will be admitted to the examination. The examination board of BDIZ EDI and EDA consists of recognised specialists. The exam has a theoretical and a practical part, both of which must be completed successfully. The procedure is as follows: The theoretical part of the exam will start with a discussion of the documented cases. In addition, candidates are expected to answer questions related to oral implantology and closely associated fields. The theoretical examination usually takes no longer than 60 minutes; it may be administered to candidates in groups. The practical part of the examination covers one or more recognised, state-of-the-art treatment method or methods and/or treatment plans covering some aspect of oral implantology. Candidates will be informed of the respective topic two weeks before the exam date. Candidates are responsible for providing the required materials and instruments on the day of the exam. The examination as a whole is subject to a fee to cover the cost incurred by the examination board.

New EDA Experts in Implantology are nominated by the president or vice president of the EDA certification committee.

AWU

More information...

To register for the next certification exam, please go to www.bdizedi.org and select English > Professionals > Expert or write to the BDIZ EDI office in Cologne at office@bdizedi.org.

Applicant's address:

Full name: .....

Full address: .....

.....

.....

E-mail: ..... Date: .....

Forward by mail or fax to:

European Association of Dental Implantologists (BDIZ EDI)
Lipowskystr. 12
81373 Munich
Germany

office@bdizedi.org
Fax: +49 89 72069889

Certification exam: EDA Expert in Implantology
Application for accreditation

I hereby apply for the EDA Expert in Implantology certification exam (EDA = European Dental Association).
I am qualified for this exam as defined below:
Member of BDIZ EDI ☐ yes ☐ no
Member of the following Societies/Associations: .....
I am: ☐ a dental clinician ☐ an oral surgeon ☐ a maxillofacial surgeon
I meet the training requirement of 250 hours of postgraduate education. ☐ yes ☐ no

Education and experience:

Surgery:

Inserted implants:	☐ less than 400	☐ more than 400
Sinus lift:	☐ yes	☐ no
Close to nerve:	☐ yes	☐ no
Advanced atrophy of the jaw:	☐ yes	☐ no
Soft-tissue augmentation:	☐ yes	☐ no
Bone augmentation:	☐ yes	☐ no

Prosthodontics:

Implant-supported restorations: ☐ less than 150 ☐ 150 or more
During the exam, I will be able to present documentation for 10 treatment cases. ☐ yes ☐ no

I understand that the examination board will review my qualifications and vote to accept or reject my application. Furthermore, I declare that all images I present are my own and that the implants have been inserted and prosthetically restored by me.

....
Applicant's signature Date

Having successfully passed the exam and paid the requisite fee, I will be certified as EDA Expert in Implantology.

Clinical and scientifical differences

1-piece and 2-piece ceramic dental implants

Curd Bollen[1], Martin Jörgens[2], Netherlands

Ceramic dental implants have long ceased to be hype, on the contrary, they can offer a significant addition to the daily dental implant practice. Not only their favourable aesthetics play a significant role, but also their ability to work completely metal-free is of added value, surely for patients with a proven allergy for grade 5 titanium, containing the hyperreactive components vanadium and aluminium.

The fact that furthermore peri-implantitis seems to appear only incidentally, is an important supporting argument for their use as well.

Whereas the original design of zirconia implants was formerly always of a 1-piece/1-phase structure (monobloc design), nowadays also 2-piece/2-phase designs (hybrid concept) are widely utilised to restore missing teeth.

Fig. 1: A 1-piece and a 2-piece ceramic dental implant (Z-Systems: Z5m & Z5-BL).

This article will compare the advantages and disadvantages of 1-piece versus 2-piece ceramic implants based on clinical, scientific, and patient related criteria.

Finally, some general recommendations towards the use of ceramic dental implants in daily practice will be formulated.

Introduction

Ceramic dental implants are a relatively new type of dental implants made from the ceramic material zirconia (zirconium dioxide—ZrO_2).[1] In the past, ceramic implants were predominantly made of aluminium oxide (Al_2O_3), which was a far too brittle material for oral rehabilitation, which led to multiple implant fractures, causing a widespread rejection in their application, leading to a global stigmatisation of ceramic dental implants.[2]

Recently, ceramic dental implants are becoming increasingly popular again due to their aesthetic appeal and biocompatibility.[3,4] Unlike traditional titanium implants, ceramic implants have a whitish colour, making them virtually indistinguishable from natural teeth, especially when the patient presents with a thin gingival biotype.[5] In such cases, the hint of grey titanium in combination with a high smile line, is an aesthetic letdown.

Additionally, ceramic implants are hypoallergenic, making them a suitable option for patients with metal allergies.[6] Actually titanium allergy can be detected in dental implant patients, even though its estimated prevalence is quite low (0.6%). A higher risk of positive allergic reaction was found in patients showing post-op allergy compatible responses (allergic symptoms) after implant placement or unexplained implant failures.[7]

These implants also have a lower thermal conductivity compared to metal implants, which can reduce sensitivity and discomfort in the mouth often experienced as unpleasant by the patient.[8]

Whereas ceramic implants are still relatively new, research has shown promising results in terms of their long-term success rates and durability.

[1] DDS, PhD, MSc, PGCert – Professor Ulster University, College of Medicine and Dentistry, Birmingham, UK.
[2] DDS, MSc, PGCert – Professor University of Sevilla, Spain & MUHAS University of Dar es Salaam, Tanzania.

The choice between a 1-piece/1-phase implant versus a 2-piece/2-phase implant is a more recent phenomenon. At the early days of ceramic dental implants, all these implants were produced as a monobloc, i.e. an implant with an integrated abutment[9] (Fig. 1).

In the dental implant community, there is still a lot of discussion on the place of ceramic dental implants in the rehabilitation of (partial) edentulous patients. A majority still considers zirconia implants as a transient phenomenon, whereas others consider it as the ultimate breakthrough in implant dentistry.[10] Scientific research has however shown that ceramic implants can be a valuable alternative to titanium implants.

On 1-piece/1-phase implants, there are more studies published since they are already much longer on the market. Already in the seventies, Sammy Sandhaus and Thomas Driskell were publishing groundbreaking work. Both proved separately the great opportunities of working with ceramic 1-piece implants.[11,12]

Only more recently 2-piece/2-phase ceramic implants entered the dental implant market (Table 1).

Due to their later release on the market, these 2-piece/2-phase implants have less scientific data available, and the existing data span up to ten years.[13,14] Although the medium-term results are excellent after 5 to 6 years, the German Association of Oral Implantology (DGI), made a warning in their recent S3 guideline.[15,16] Thiem and co-workers confirm the feasible use of one-piece zirconia implants as an addendum/alternative to titanium implants. However, no conclusion regarding the application of two-piece ceramic implant systems can be drawn based on the existing data. So, they suggest recommending these implants only after the patient has been informed in detail about the lack of long-term clinical data.

Criteria

Based on eight different criteria, the differences and advantages/disadvantages between 1-piece and 2-piece ceramic dental implants will be discussed.

BRAND	PRODUCT	CEMENTED ABUTMENT	SCREWED ABUTMENT	SCREW MATERIAL
Z-Systems	Z5-BL/Z5-TL	no	yes	ceramic or titanium
Zeramex	XT/P6	no	yes	carbon
Nobel Biocare	NobelPearl	no	yes	carbon
Straumann	Pure	no	yes	titanium
Zircon Medical	Patent	yes	no	–
WITAR	AWI	no	yes	direct*
Neodent	Zi	no	yes	titanium
Camlog	Ceralog	no	yes	titanium or gold
SDS	Bright/Value	yes	yes	peek
TAV	W	no	yes	titanium

*Ceramic abutment directly screwed into the implant (no additional screw).

Table 1: Detailed overview of the 2-piece/2-phase ceramic implants and their components.

1. Design

With a 1-piece implant, the implant and the abutment are fused to one simple monobloc. Therefore, there can't be any bacterial leakage between the implant and the abutment because there is no joint as with the 2-piece implants, where there is always a gap detected between the implant and the abutment.[17] This means furthermore that the temporary or final crown finally must be cemented on top of the implant. There is a wide range of these implants commercially available (Table 2).

The more complex 2-piece implants consist of two or three parts: the implant body itself, the abutment, and the abutment retention screw. In case of a cementable abutment, there is of course no abutment screw. The retention screw can be fabricated out of titanium, gold, carbon, or zirconia (Fig. 2).

It's important to follow the manufacturer instructions for applying to correct torque on these screws: titanium screw is 25 Ncm; carbon screw is 25 Ncm; zirconia screw is 12 Ncm; gold screw is 15 Ncm! Currently, there is only a limited number of 2-piece implants on the dental market (Table 2).

2. Surgery

The first stage surgical procedure for both implant types is identical, although for 1-piece implants a flapless approach can be appropriate. The flapless technique for 1-piece implants shows however statistically significantly more bone loss which might be indicative for future problems.[18]

Only in a 2-stage approach for 2-piece implants, a second surgery is necessary, connecting the healing abutment to the implant. Healing abutments are mostly made from PEEK or PEKK.

Because it is not always allowed to prep 1-piece zirconia implants (always carefully look at the manufacturer recommendations!), their immediate correct surgical positioning is of utmost importance.[19]

Therefore, it can be advantageous to initially use guided surgery for these procedures, helping to avoid incorrect inclination of the abutment component of the implant.[20] For 2-piece implants this problem is less significant, since most commercial brands offer angulated or preparable abutments in their portfolio.

Whether 1-piece or 2-piece implants are installed, always low drilling speeds should be applied, surely when ceramic implant drills are applied. Drills made of ceramics don't conduct the warmth, leading to overheating of the bone in the osteotomy.[21] The latter doesn't lead to implant failure but induces significant crestal bone loss during healing and a final lower percentage of bone-to-implant contact.[22] These drilling speeds start around 800 rpm for the first drills, reducing to 400 rpm for the last drills. The advised tapping for D1-D2 (and D3) bone should be performed at 15 rpm.[23]

Fig. 2: Different abutment retention screws: titanium (Neodent)—carbon (Zeramex)—zirconia (Z-Systems)—gold (Camlog).

It is of utmost importance to check the individual recommendations of the manufacturer before using the respective drill sequences.

1-PIECE CERAMIC IMPLANTS	2-PIECE CERAMIC IMPLANTS
Z-Systems: Z5m/Z5m(t)	Z-Systems: Z5-BL/Z5-TL
Straumann: Pure Monotype	Straumann: Pure
Camlog: Ceralog Monobloc	Camlog: Ceralog Hexalobe
Zircon Medical: Patent 1-piece	Zircon Medical: Patent 2-piece
SDS: Bright	SDS: Bright/Value
TAV: W-1	TAV: W-2
Witar: AWI 1-piece	Witar: AWI 2-piece
ZiBone	ZiBone
Medical Instinct: Bone Trust	Neodent: Zi
Fair Implant: Fair White	Zeramex: XT/P6
Ceraroot	Nobel Biocare: NobelPearl
Tree Oss Ceramic	SIC: SIC White
Bredent: WhiteSky	

Table 2: Overview of 1-piece and 2-piece ceramic dental implants.

3. Loading

Since for ceramic implants almost always bone tapping is utilised, the primary stability of these implants is often insufficient for direct loading.[24] Therefore, delayed, or late loading are mostly recommended for 2-piece implants. Moreover, in the aesthetical front area, a 2-phase technique can help to improve the gingival aesthetic outcome as shown by Suchetha and co-workers.[25]

1-piece implants are due to their design anyway directly loaded. To reduce these immediate loading forces, most brands offer silicone or PEEK protection caps to place over the abutment after installing the implant. These shock absorbers also protect for gingival overgrowth during the required healing time (Fig. 3).

4. Prosthetics

The prosthetic procedure of a 1-piece implant is almost completely identical to the prosthetic process for natural teeth. Both, analogue and digital impression are possible. Due the high affinity of the soft tissue towards zirconia, often excess gingiva must get reduced by retraction cords or (diode) laser.[26] Implant analogues are not really required in this method.

For 2-piece implants, the procedures are identical as for titanium 2-piece implants:

Fig. 3: PEEK protection caps for 1-piece implant (Z-Systems, Z5m).

analogue or digital impression, open or closed tray. Different brand-related scan bodies are available and here an implant analogue is always needed for the further laboratory handling. It is still of the highest importance to use the original components, delivered by the respective manufacturers, since printing of these individual components does not offer the same accuracy yet.[27]

5. Sizes

The offer in diameters and lengths is rather limited for 1-piece as for 2-piece ceramic implants. Table 3 shows the ranges in diameters and lengths of the actual most common used ceramic dental implants.

The available diameter ranges from 3.3 (Straumann) to 7 mm (SDS). The lengths range from 6 (SDS) to 16 mm (bredent). The average diameter is 4.2 mm and the average length is 10.8 mm. With these sizes almost all indications are properly covered.

Considering design there are parallel and tapered implants available. Most of the implants are not self-tapping. Therefore, almost in all situations, bone tapping is advised before implant installation.

For the 2-piece implants there is large variety of internal connections. Not every connection offers the same stability (Fig. 4).

6. Costs

The use of 1-piece implants is relatively less expensive since there is only need for a full ceramic crown that can be cemented on top of the implant–abutment complex. For 2-piece implants, there is always the need for extra components: ceramic abutments and abutment retention screws. These extra components mean not only an extra cost in their purchase from the manufacturer, but also an extra cost in the laboratory handling, making the final cost of a 2-piece ceramic implant substantially higher.

7. Complications

The main complication for oral implants is the absence of lack of osseointegration. With the actual ceramic materials, the success rates of zirconia implants are comparable with those of titanium implants. After all, zirconia and titanium implants show a similar soft and hard tissue integration capability. Titanium however, tended to demonstrate an accelerated initial osseointegration compared to zirconia. It is meanwhile also clear that zirconia implants against that do not show better clinical results as titanium implants.[28,29] So both systems seem to have comparable clinical outcomes.

With 1-piece implants, the cementation of the crown can cause cement rests that can remain present subgingival. These toxic cement rests can easily induce peri-implantitis.[30] Therefore, the meticulous removing of all excess cement after cementation of the crown, is of utmost importance.[31]

As mentioned before, the wrong positioning (i.e. inclination) of a 1-piece implant that may not be grinded post-operative, is a major problem. Here the only solution is explantation.

2-Piece ceramic implants can offer different complications. Abutment screw loosening and abutment screw fracture are the main problems.[32]

Therefore, it is essential to apply the exact prescribed torque value when installing the abutment or the crown. The more components used, the higher the risk for complications.

As far as actual scientific literature concerns, there seems to be less peri-implantitis

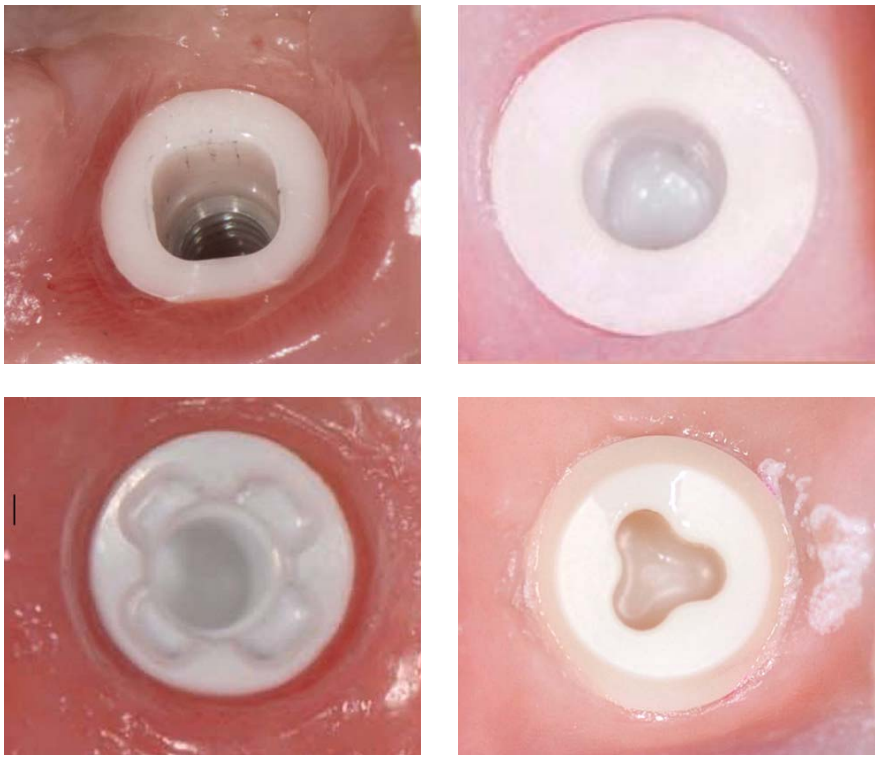


Fig. 4: Different internal connections of different ceramic implant brands (clockwise): Pure (Straumann)—Z5c (Z-Systems)—Patent (Zircon Medical)—Zeramex (DentalPoint).

around ceramic implants in comparison with titanium ones.[33,34] A peer explanation on this phenomenon is still waiting for now.

8. Patients perspective

Probably this is an underestimated and neglected factor in daily clinical decision making. Patients prefer minimal invasive therapy, minimal morbidity, minimal number of appointments and minimal costs. When comparing 1-piece and 2-piece implants, it is obvious that patients will prefer their therapy with 1-piece implants, because this concept offers the most advantages for them.

Moreover, the recent S3 guideline on ceramic implants by the German Association of Oral Implantology, advises all practitioners to warn their patients that there is still insufficient scientific data to support the unlimited use of 2-piece ceramic dental implants.[16] The latter should therefore in fact always be consented before applying 2-piece implants in practice.

BRAND	RANGE OF DIAMETERS	RANGE OF LENGTHS
Z-Systems	3.6–5 mm	8–12 mm
Zeramex	3.5–5.5 mm	8–14 mm
Straumann	3.3–4.8 mm	8–14 mm
Nobel Biocare	3.5–5.5 mm	8–14 mm
Camlog	4 mm	8–12 mm
Zircon Medical	4.1–5 mm	7–13 mm
SDS	3.2–7 mm	6–14 mm
TAV	3.6–4.8 mm	8–14 mm
bredent	3.5–4.5 mm	8–16 mm
ZiBone	3.6–5 mm	8–14.5 mm
Tree Oss	3.7–4.3 mm	10–13 mm
Ceraroot	3.5–6.5 mm	8–14 mm
Neodent	3.75–4.3 mm	10–13 mm
WITAR	3.9–6 mm	8–14 mm
Fair Implant	3.5–5 mm	8–13 mm
Medical Instinct	4–5 mm	10–13 mm
SIC	3.5–5.5 mm	8–14 mm

Table 3: Range in diameters and lengths of different commercially available ceramic dental implant systems.

Conclusions

In implant dentistry, it can be stated that 1-piece implants offer meanwhile the same prognosis as 2-piece implants. Moreover, recent studies indicate clearly that 1-piece as well as 2-piece ceramic implants show excellent clinical results. However, 2-piece ceramic dental implants don't offer sufficient long-term scientific substantiation yet to support their overall use in daily practice. Therefore, always an extended informed consent should be offered to patients receiving a therapy with 2-piece zirconia implants.

The use of 2-piece zirconia implants will increase since they offer much more versatility than 1-piece implants. This higher versatility will unfortunately result in a raise of the costs for the practitioners and consequently for the patients.

Future randomised controlled trials will have to confirm the promising results of 2-piece zirconia implants.

Literature

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A tsunami is hitting oral implantology

Dr Ronald Möbius, MSc, Germany

Peri-implantitis is characterised by inflammation and bone resorption. Reducing the inflammation is important; it is a prerequisite, the first step, but not the therapy of bone metabolism. If the bone metabolism is negative, this is reflected in bone resorption, which ultimately leads to implant loss.

It is not the inflammation that is the problem, but the negative bone metabolism. In peri-implantitis therapy, it is not enough to treat the inflammation—it is the bone metabolism that is causing the patient to lose the implant.

Bone resorption results from too many activated osteoclasts. There are no microorganisms that break down bone. Even if the bone is in the ground for 100 years, microorganisms will not break it down. These are different causes. Microorganisms cause inflammation, and too many activated osteoclasts cause bone resorption. Different causes require different treatments.

We need to learn how to treat bone metabolism. If more bone is broken down than built up, the bone metabolism is negative. Depending on how negative the bone metabolism balance is, the patient will lose the implant quickly or over many years.

The activity, quantity and function of osteoblasts/osteoclasts can be influenced therapeutically. For example, osteoclasts can be reversibly inactivated, regardless of how they were activated.

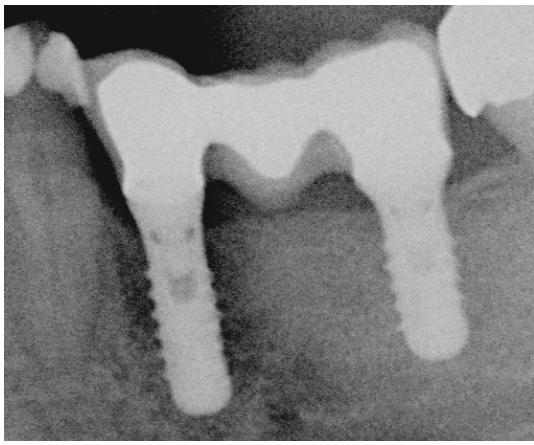
There are many options for the treatment of periodontal inflammation. Bone metabolism therapy, on the other hand, is less known and even less practised. Previous attempts to treat peri-implantitis have been based on reducing the inflammation. Patients with peri-implantitis resorb more bone than they rebuild. The obligatory balance in bone remodelling is shifted towards degradation. Bone is effectively type I collagen, and the collagen metabolism can be measured digitally using the aMMP-8 test, with levels below 10 ng/ml considered normal and values up to 20 ng/ml representing the upper tolerance range. Any level above 20 ng/ml indicates excessive collagen degradation and the need for treatment. However, negative bone metabolism can also be diagnosed by careful observation of the patient.[11]

Implants are foreign bodies. This means that a subliminal foreign body reaction will occur.[5] Unlike teeth, implants are firmly anchored in the bone, have no intrinsic mobility and depend on a balanced bone metabolism.

There are many causes that can lead to the additional activation of osteoclasts and thus to increased bone loss. The ageing process begins after the age of 35. This is a fundamental problem for implant patients, who are usually older than 35. As the patient ages, everything becomes less: less hair, less smooth skin, less muscle, less new bone formation. The decrease in new bone formation only gives the appearance that bone resorption predominates. In fact, however, the formation of new bone decreases. People age, and just as everything slows down with age, new bone formation also slows down.

Bone quality deteriorates, and the bone loses stability due to insufficient osteoblast activity, and osteoclast activity appears to increase proportionally. In addition, there is a decrease in mineralisation, which has a major impact on bone stability. Masticatory forces result in rotational forces on the implant. The axis of rotation is located in the centre of the implant, and the maximum deflection and load is in the marginal area, which shows periimplant crestal bone loss, the beginning of pocket formation. The deepening pockets change the milieu, and thus the microbial composition, from supragingival, aerobic, regenerative to subgingival, anaerobic, pathogenic.

Where the implant emerges into the oral cavity, a tissue area is formed that is similar in structure to the corresponding area on the tooth.[12] Herman et al. give



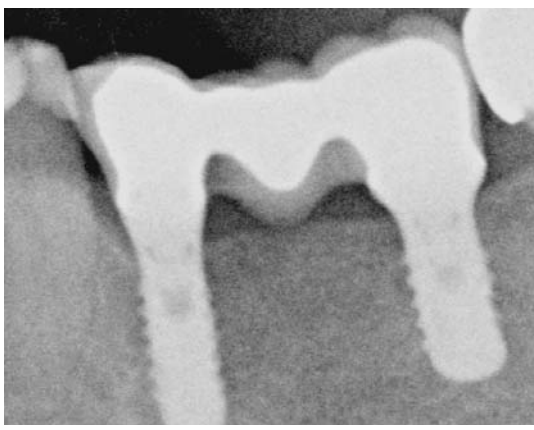


Fig. 1: Before starting therapy. **Fig. 2:** Completion of therapy after nine months.

average values of 3.0 mm for the biological width at the implant.[4] Teeth are different from implants. The tooth is connected to the alveolar socket and neighbouring teeth by a fibrous apparatus through connective-tissue attachment structures.[14] On the implant, on the other hand, there is only adhesion via hemidesmosomes.[3] However, this connection osteogenesis would already be the maximum success; usually only contact osteogenesis is achieved.[13]

The gingival pocket is protected by the constant flow of sulcular fluid. The gingival sulcular fluid is a serum transudate and exudate. In a 5 mm pocket, it is replaced approximately 40 times per hour.[7] The implant has no sulcular fluid flow. The saliva is stationary; it is not moved or replaced. In a vase of flowers, if the water has been standing too long, it becomes putrid. The same applies to implants. The implant sits in a stagnant, putrid liquid. Sulcular fluid is a reliable indicator for the diagnosis of peri-implantitis.[1,2]

Prof. Antoine Béchamp (1816–1908) once said: "The microbe is nothing, the environment is everything." In order to achieve lasting therapeutic success, we need to change the milieu, the environmental conditions for the microorganisms, and also induce the regenerative microorganisms to proliferate.

Peri-implant bone metabolism cannot be assessed by examining the oral cavity. Radiographs also show no evidence of negative bone metabolism in the early stages.

This is where the aMMP-8 test comes in. aMMP-8 is currently the only clinical parameter that indicates collagen degradation even before it has started. This means that we can start treatment even though there are no clinical findings. In this treatment phase, only bone remodelling therapy is required. What is being treated is a negative bone metabolism that has not yet occurred—restitutio ad integrum.

All those microbial tests do not help us. Only when bone resorption is already in full swing do changes in microbial composition occur, accompanied by horizontal bone loss. The therapeutic success when

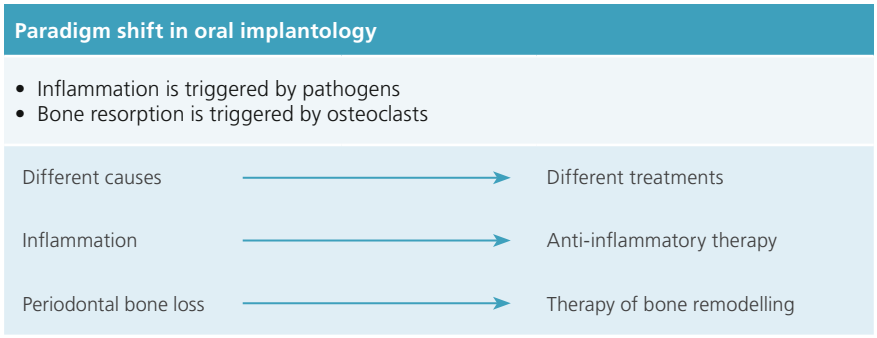


Fig. 3: Paradigm shift in oral implantology.

treating bone metabolism is now restitutio cum defectu.

There is only one bone metabolism, not one for the jaw, one for the spine, one for the knee, etc. So peri-implantitis is just the dental term for an overall negative bone metabolism. There are many causes of negative bone metabolism. The main causes are lack of exercise, oxygen and fluids, effective microorganisms, too many high carbs, deficiencies of vitamin D3, vitamin K2, vitamin A, calcium, iodine, magnesium, etc.—In short, a lack of physiological bone load, untrained lungs, fluid deficits and inadequate intake of vital substances.

It would be a dream to be able to change this, but it would require patients to make drastic lifestyle changes. Experience shows that patients need to have serious general signs of illness before they are willing to comply here. There will be some patients who do comply, and it makes sense to get them on the right track.

The whole treatment will only work if the dentist has a good understanding of systemic bone metabolism. Half-truths and haphazardly selected measures will not bring the desired success. Bone metabolism is extremely important. Bone has more than just a holding and supporting function. Calcium metabolism is directly linked to bone metabolism and therefore influences almost all life processes, because every cell, every muscle, every brain cell needs calcium to function. Calcium is the most abundant mineral, and this is where and why many mistakes are made. In today's industrialised lifestyle, calcium intake is reduced and we struggle with the effects of the calcium paradox.

We have too much calcium where we do not need it (soft tissues, organs, blood

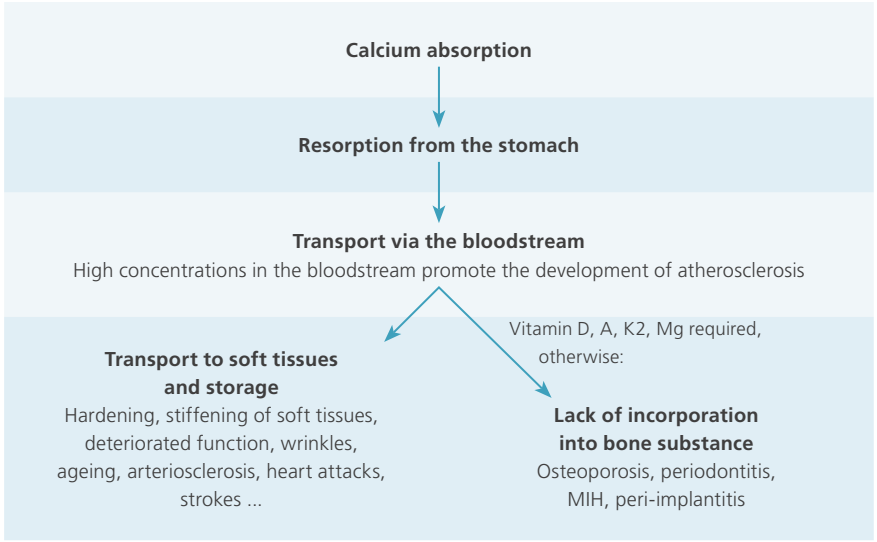


Fig. 4: Calcium intake: the calcium paradox.

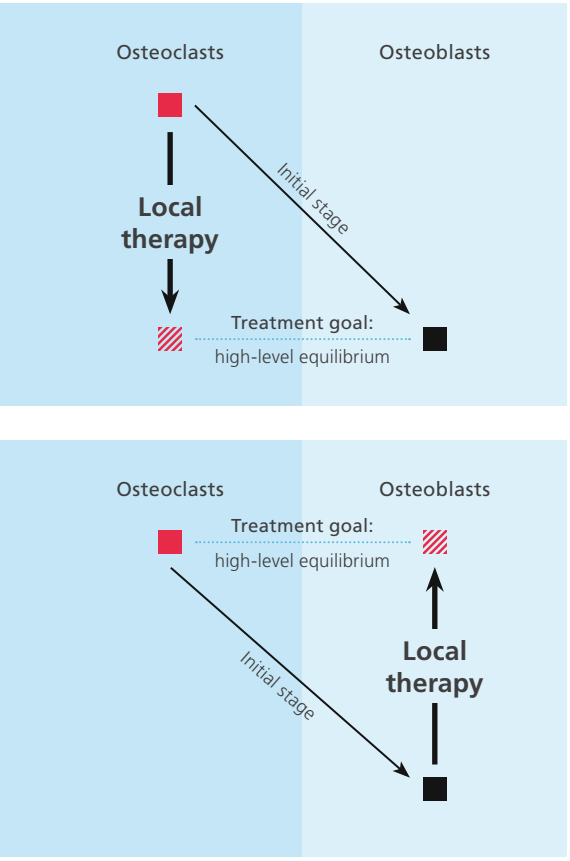


Fig. 5: Difference between the local and systemic therapy of bone metabolism.

vessels, brain) and too little where we do need it (teeth, bones = MIH, osteoporosis).

Bone also has other functions. Blood cells only live for 120 days and then have to be replaced by a new one. They are produced by the red bone marrow, as are immune cells, tumour killer cells and many others that depend on a functioning bone metabolism.

Since this knowledge is not part of the dentist's basic training, I recommend that interested colleagues attend special training courses, e.g. those offered by the Saxony State Dental Association.

Implants—defining the problem

1. Local therapy of bone metabolism—symptomatic

The excess activated osteoclasts are inactivated, and osteoclasts activity is slowed down to match the insufficient number of activated osteoblasts. Now the amount of new bone formation is equal to the amount of bone resorption, albeit at a low level.

2. Systemic therapy of bone metabolism—cause-related

Osteoclasts are not the problem in negative bone metabolism. It is not that too much bone tissue is suddenly degraded. Rather, the structure and mineralisation of the bone do not meet the requirements, so it only appears as if excessive bone resorption were the cause. Systemic therapy activates osteoblasts, stimulates new bone formation and mineralisation, and creates a balance between bone resorption and replacement at a very high level.

Therapy of peri-implantitis

During therapy, the connective tissue collar around the implant is pulled very tightly, so that the pocket disappears completely and no putrid saliva lakes can form around the implant. In parallel, osteoclasts are reversibly inactivated, osteoblasts are activated, and calcium metabolism/transport/storage is activated. The maximum time for bone maturation is nine months. The therapy has been described in the *Dental Barometer*.[8–10]

Unfortunately, few dental practices are technically equipped to treat peri-implantitis when considering how to effectively manage biofilm on implants:

1. Using ultrasound or sonic systems to shake implants with reduced osseointegration and applying vertical and rotational forces?—Definitely NOT!
2. Hand instruments, perhaps with the screw thread exposed?—How would that work? (Koch)
3. Supragingival powder jets penetrate the pocket a maximum of 2 mm?—Insufficient.
4. Rotating instruments?—Unfavourable.

Summary

It is less important to explain a peri-implantitis treatment that has worked for almost 30 years while the underlying therapeutic approach is unknown. The reduction of inflammation and bone resorption are different processes. At present, only inflammations are generally treated. These are triggered by microorganisms. There are no microorganisms that break down bone. The faster and more effective the inflammation treatment, the further bone resorption slips into the negative range, e.g. microorganisms are killed by antibiotics. The dead microorganisms are removed by the body's own scavenger cells. In order for the large phagocytes to get to the site, they push along high levels of aMMP-8 to break down collagen.

A healthy clinical situation emerges, but bone metabolism slips further into negative territory.

References

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Long-term peri-implant stability

Interview with Dr Ausra Ramanauskaite

The Implant Solutions World Summit in Athens provided a platform for implantology specialists to learn together, make professional contacts and network. The editorial team of *EDI Journal* took the opportunity to discuss the latest findings on peri-implantitis with one of the speakers, Dr Ausra Ramanauskaite from the University Hospital in Frankfurt am Main.

At the congress, you spoke about peri-implantitis prevention for long-term peri-implant health. How has the term "life-long" changed in recent years in relation to implants?

We have gained a better understanding of the important factors in maintaining healthy peri-implant tissue. We now know that not only the bone base, but also the soft tissues and the design of the prosthetic restoration play a critical role in maintaining the health of dental implants.

So how can we maintain peri-implant stability for many decades, and what can we promise our patients?

Peri-implantitis is a disease caused by bacterial plaque, so regular plaque control is essential to prevent the occurrence of peri-implant disease. Treatment providers must ensure that the prosthetic restoration allows patients to clean the implant site properly. Therefore, patients who receive dental implants must be prepared for a lifetime of care.

What factors can influence long-term outcomes?

In peri-implant care, many factors contribute to maintaining implant health, such as proper implant positioning, the presence of keratinised mucosa and an appropriate prosthetic design that allows

effective cleaning of the implant site. Patient-related factors, particularly periodontitis, must also be addressed prior to implant placement to reduce the risk of peri-implant disease.

Are there any developments in this area that could potentially redefine or improve the gold standard in the treatment of peri-implantitis? If so, what are some of the new approaches or technologies currently being tested?

As we know, peri-implantitis is an irreversible disease that requires surgical intervention in most cases. The choice of surgical technique (reconstructive therapy, resective measures, access flap or combined therapy) depends on the defect configuration, which is a crucial aspect in the choice of treatment approach. After surgery, it is essential to engage the patient in regular maintenance to preserve the results achieved.

Dr Ausra Ramanauskaite speaks about peri-implant soft tissue and its relationship to peri-implant stability during the Dentsply Sirona Implant Solutions World Summit.

How do the treatment options for peri-implantitis differ in terms of effectiveness and invasiveness?

Non-surgical measures have been shown to be ineffective in preventing further progression of the disease, so a surgical intervention is required in the majority of cases. Reconstructive approaches help maintain soft-tissue height and are preferred in cases with intrabony defect configurations. In aesthetically challenging areas, clinicians may also consider simultaneous soft-tissue volume augmentation with connective-tissue grafts or substitutes. However, as already mentioned, the defect configuration and the patient's aesthetic requirements will dictate the treatment approach.

How do periodontitis and peri-implantitis differ in terms of treatment?

We now know that periodontitis is a risk factor for peri-implantitis. This means that patients who have lost teeth due to periodontitis have a higher risk of peri-implantitis in the future. The surgical concepts developed for the treatment of periodontitis have recently been modified for the treatment of peri-implantitis, but they are unfortunately much less predictable than in periodontitis treatment.

What development potential do you see in digital dentistry, especially in periodontal treatment? What could become better, easier and smarter in the coming years?

Digital treatment protocols make it easier to position implants prosthetically and reduce treatment errors and iatrogenic factors, which are also important for aesthetically pleasing results and maintaining the health of the peri-implant tissue. Methods are currently being developed for the early detection of peri-implant disease, which will allow early therapeutic intervention, as the earlier the diagnosis, the better the prognosis for the implants. We are also trying to better understand the pathophysiology of peri-implant disease in order to find new treatments. I believe that more sensitive diagnostic techniques and more reliable therapeutic options will be available for clinical practice in the near future.

What new technologies or innovations did Dentsply Sirona present at the World Summit that you believe could have a positive impact on the development of treatment?

The new innovative implant designs and digital technologies enable better aesthetic results and allow dentists to avoid a number of surgical, technical and biological complications. Most importantly, by adopting the innovations presented at the congress, we can achieve the desired results for our patients, which is paramount for clinicians.

Thank you very much for your time.

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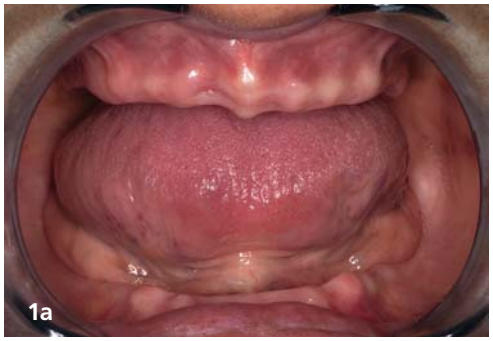
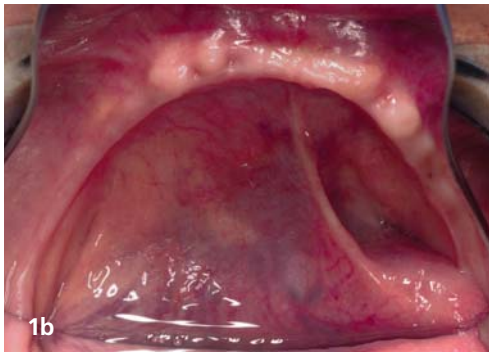
Viability in simplicity

Mandibular two implant retained overdenture

Dr Sanjay Sah, Nepal

Removable Complete Dentures are commonly fabricated for edentulous jaws. The stability of removable complete denture depends on the height and width of the edentulous area.





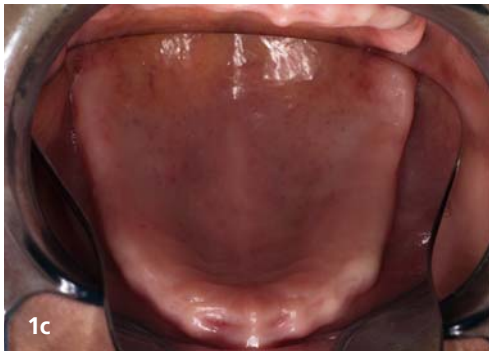


Fig. 1a: Completely edentulous patient. **Fig. 1b:** Mandibular arch with moderate bone loss. **Fig. 1c:** Well formed, broad and rounded maxillary ridge.

Considering the lower coverage area of the mandible, mandibular dentures are usually not as stable as their maxillary counterparts. Furthermore, the constant mobility of the floor of the mouth and movement of the mandible makes them less retentive as well. Faster resorptive changes in the mandible as compared to the maxilla, warrant constant relining or rebasing of the denture, causing decreased acceptability by the patient and the clinician. Hence implant retained mandibular overdentures retained by two implants have emerged as the minimum standard of treatment for rehabilitation of the edentulous mandible.[1]

The preferred choice of treatment between fixed and removable implant-supported overdentures varies across cultures and countries. A survey done across ten countries showed that, in all but two countries, most respondents thought that patients with implant overdentures were equally or more satisfied with overdentures as those with fixed implant-supported prostheses.[2]

Case report

A seventy-year-old woman reported with edentulous jaws (Fig. 1a) and desired replacement of missing teeth and ability to chew comfortably. She had moderate alveolar bone loss in the mandible (Fig. 1b). The maxilla revealed broad, well-formed ridge and sufficient vestibular depth for fabrication of a removable complete denture (Fig. 1c). Radiographic analysis was done with a CBCT (Figs. 2a & 2b). A two-implant retained and a soft-tissue and implant-supported mandibular overdenture was planned for the lower arch. This decision was also based on the fact that the patient had financial constraints.

Preoperative procedures

Stainless steel mesh reinforced removable maxillary and mandibular complete dentures were fabricated (Figs. 3a–3e). Bilateral balanced occlusion was established. Duplication of the lower denture was done, and a clear acrylic stent was made to serve as a surgical guide for implant positioning in the canine region as well as to maintain the crown height space (Fig. 4). The fit of the clear acrylic denture was checked intra-orally (Fig. 5). The Crown-Height Space (CHS) was 13 mm (Fig. 6), which was sufficient for planning the case with free standing stud abutments (retention.loc, bredent medical) for the prosthetic phase.

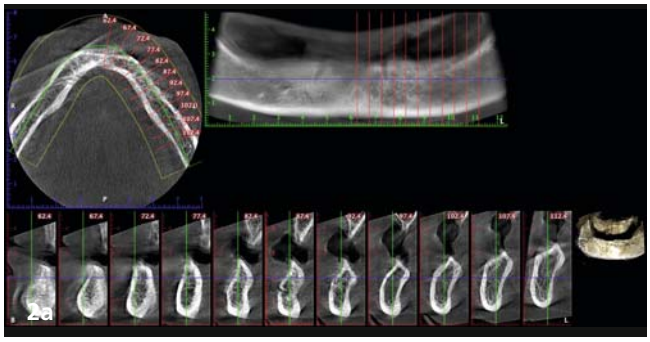
Surgical procedure

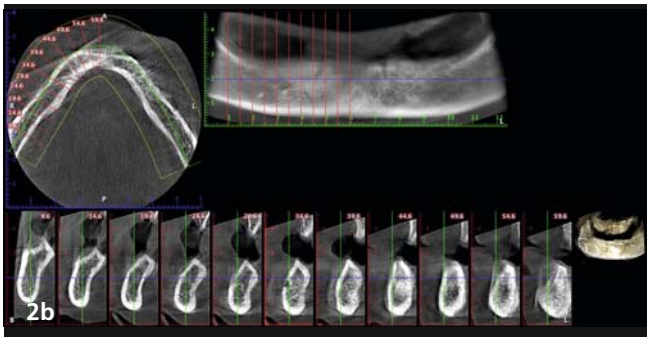
The procedure was done under local anaesthesia by administration of lignocaine 1:100,000 by local infiltration technique. The clear acrylic surgical guide was placed, and the osteotomy sites were marked as

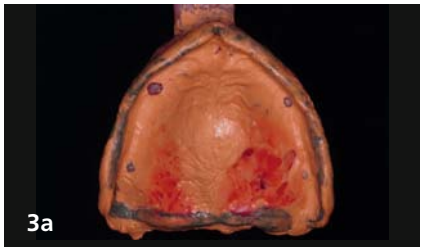
bleeding points on the ridge as per plan (Fig. 7). Implant osteotomy was prepared completely flapless (Fig. 8). The bredent medical mini2SKY implants (3.2 x 12) were placed freehand as parallel to each other as possible. Torque greater than 35 Ncm was achieved on both the implants. The implants were loaded immediately. Retention.loc (bredent medical) abutments with height of 2 mm were placed on the external hex of the mini2SKY implants (Fig. 9). There was less than a ten-degree divergence in their parallelism, as indicated by the angle measuring post (Fig. 10). The abutments were tightened with the retention screws. Fixation with mini2SKY retention screw ensures optimal application of force via the precision torx in the implant. Antirotation design of the torx prevents screw loosening.

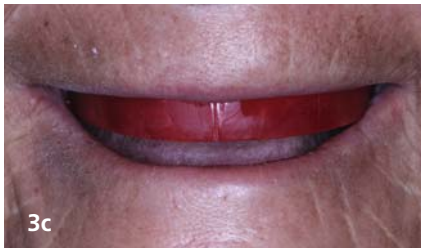
Prosthetic procedure

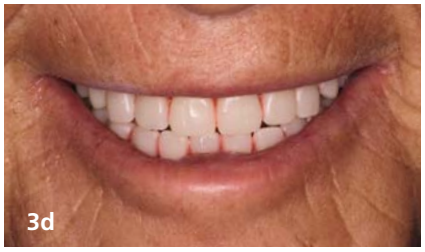
Blocking rings were placed on the abutments (Fig. 11) to prevent any acrylic from flowing underneath during the intra-oral pickup. This was followed by placement of the black processing inserts (Fig. 12), which serves the purpose of a spacer for retention inserts in the prosthesis and component on which the final steel housing (male component) is placed (Fig. 13). A through and through hole was made in the acrylic denture (Fig. 14) followed by placing self-cure acrylic resin in the holes and making an intra-oral pickup of the steel housing with the black processing inserts (Fig. 15). The black processing insert was removed using a special tool (SKY locator instrument, bredent medical; Fig. 16) and the silicone retention blue ring (minimum retention) was inserted (Figs. 17a & b). The choice of retention ring was based on the requirement of minimizing the transmission of masticatory forces to the implants during the osseointegration phase since immediate loading was done. There is approximately 0.4 mm of empty space between the male and female components. This procedure creates true vertical resiliency and allows a hinging func-

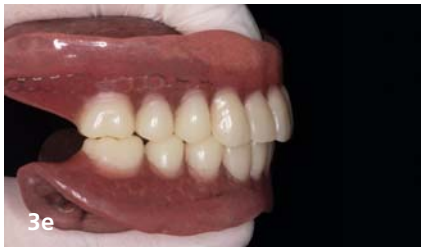


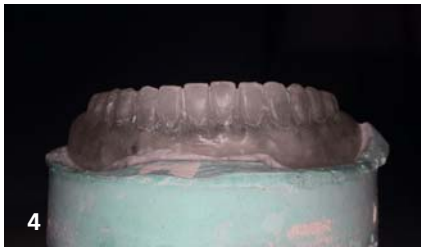


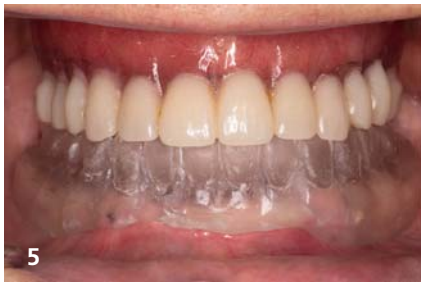












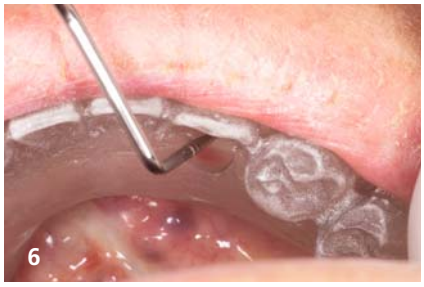


Fig. 2a: Sagittal plates left side. **Fig. 2b:** Sagittal plates right side. **Fig. 3a:** Upper final impression after border moulding. **Fig. 3b:** Lower final impression after border moulding. **Fig. 3c:** Maxillary plane verified intra-orally. **Fig. 3d:** Try-in done. **Fig. 3e:** Dentures fabricated with a balanced occlusion. **Fig. 4:** Clear acrylic stent made from duplicated lower denture. **Fig. 5:** Clear acrylic stent fit checked intra-orally. **Fig. 6:** Checking crown height space (CHS).

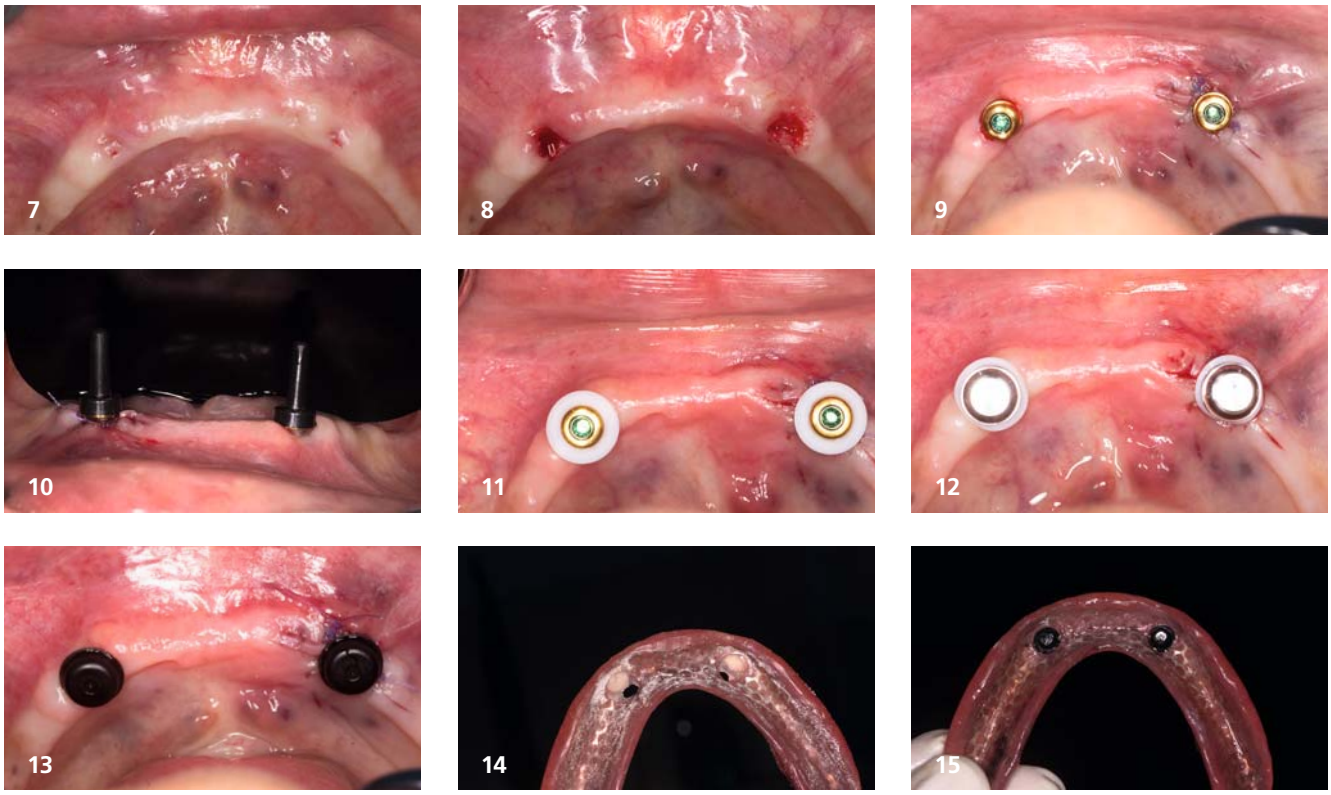


Fig. 7: Marking bleeding points for implant position. **Fig. 8:** Flapless osteotomy site preparation. **Fig. 9:** Retention.loc abutments placed on the external hex of the mini2SKY implants. **Fig. 10:** Angle measuring post showing less than ten degree divergence of the implants. **Fig. 11:** Blocking rings placed. **Fig. 12:** Placement of the final steel housing (male) component. **Fig. 13:** Black processing rings placed. **Fig. 14:** Space created in denture for intra-oral pickup. **Fig. 15:** Intra-oral pickup done.

tion. The retention ring can be changed to an increased retention ring, post osseointegration of implants, if increased denture retention is desired by the patient. Immediate postoperative OPG was taken (Fig. 18). The denture was polished and balanced occlusion was achieved (Fig. 19). The patient was extremely comfortable and satisfied with the comfort and aesthetics achieved (Fig. 20).

The patient reported for a follow-up after two years, the soft-tissue level was stable (Fig. 21). Follow-up X-ray showed stable crestal bone levels (Fig. 22) and the retention of denture was increased by changing the retention insert to pink (Fig. 23).

Discussion

In 2002, a symposium held at McGill University in Canada, focused on the efficacy of available treatments for edentulous patients. The mandibular two-implant overdenture was considered as first choice standard of care for edentulous patients. According to the consensus, a two-implant retained overdenture should be the minimum treatment offered to patients for treating an edentulous mandible. If the patient is willing to continue with the removable prosthesis, an implant-supported overdenture is advocated than the fixed prosthesis.[1]

The literature indicates that implant-supported overdentures in the mandible provide predictable results with improved stability, retention, function, and patient satisfaction compared with conventional dentures with the possibility of incorporation of the existing denture into the new prosthesis as well. Implants placed in the anterior mandible

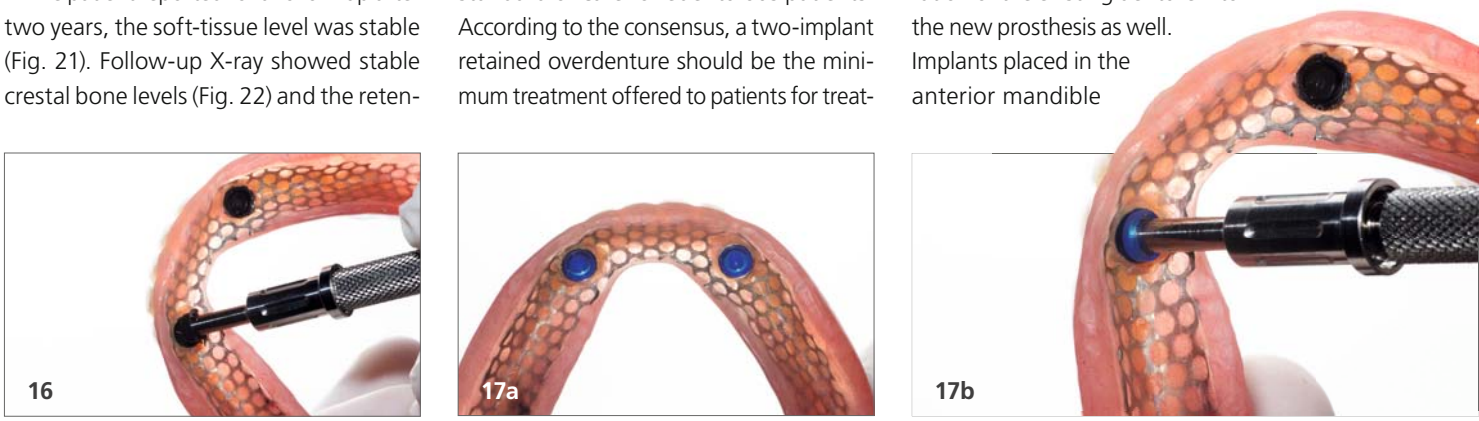


Fig. 16: Special tool used to remove the black processing. **Fig. 17a:** Placing the blue retention ring using the special tool. **Fig. 17b:** Blue retention rings placed.

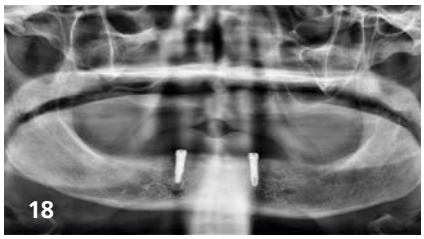
have a success rate equal to or greater than 95 per cent.[3]

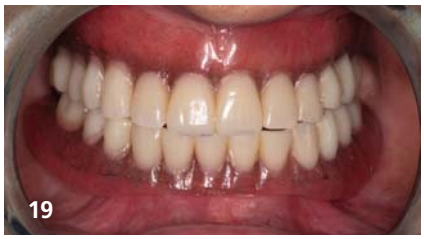
According to Misch et al., the Crown-Height Space (CHS) is an important factor for making a treatment choice in rehabilitation of edentulous jaws. The CHS in the current case was 13 mm and was the determinant factor in treatment planning. The CHS for implant dentistry is measured from the crest of the bone to the plane of occlusion in the posterior region and the incisal edge of the arch in question in the anterior region. A consensus conference on CHS in 2004 concluded that ideally, removable implant overdentures often require ≥ 12 mm CHS for denture teeth and acrylic resin base strength, attachments, bars, and oral hygiene considerations.[4]

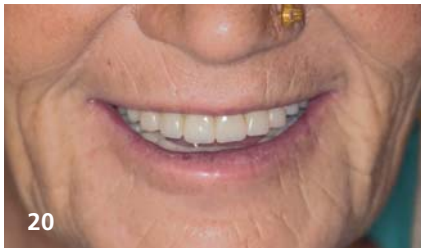
The implants were placed as parallel to each other as possible. Parallelism of implants especially when solitary abutments are planned and used is very critical, as abutment non-parallelism leads to faster wear of the matrix.[5] Ideally, the freestanding stud-type attachments should be parallel to each other to provide ease of insertion and removal, and reduce wears potential.[6] Increased implant angulation has been reported to reduce the longevity of the attachment retention by causing premature wear of the components and required increased maintenance.[7]

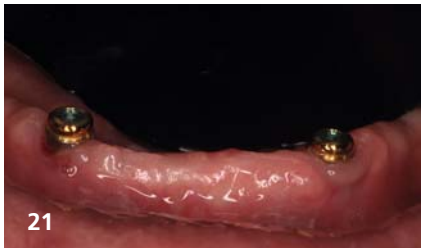
The two-implant mandibular overdenture with non-splinted abutments was loaded immediately. The immediate loading concept using two non-splinted implants with mandibular overdenture not only achieves clinical and radiographic outcomes similar to those of conventional loading but also improves patient satisfaction. In the early loading protocol, the use of two implants to support a mandibular overdenture attains outcomes similar to that of conventional loading.[8]

The implant-retained overdenture for the mandible has been proven to be a highly successful prosthetic treatment similar to the fixed implant denture.[9] Implant-supported overdentures offer many practical advantages over conventional complete dentures and removable partial dentures. These include decreased bone resorption, reduced prosthesis movement, better aesthetics, improved tooth position, better occlusion, increased occlusal function and maintenance of the occlusal vertical dimension.[10]









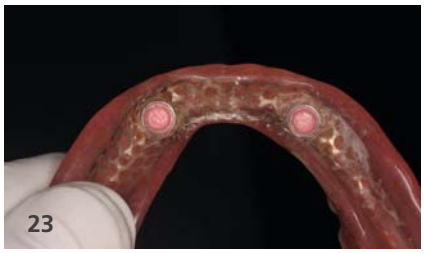
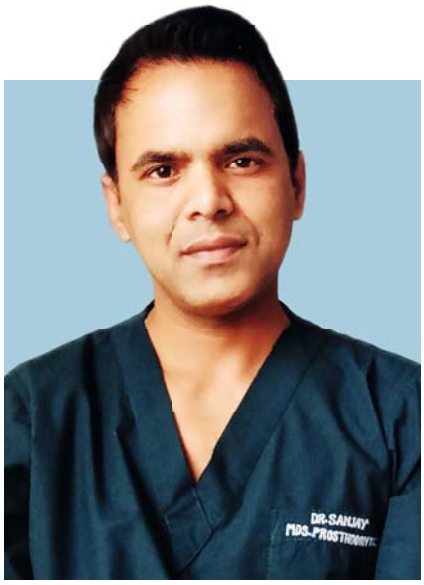


Fig. 18: Immediate postoperative OPG. **Fig. 19:** Balanced occlusion established. **Fig. 20:** Satisfied patient with appealing aesthetics. **Fig. 21:** Two-year follow-up showing stable soft tissue. **Fig. 22:** Two-year follow-up showing stable crestal bone levels. **Fig. 23:** Retention ring changed to the more retentive pink retention ring.

Conclusion

The rehabilitation of the edentulous jaw with implants can be carried out using an array of surgical and prosthetic treatment options. Treatment choice should be a combination of clinicians' expertise and comfort along with expectation and economic viability of the patient. Holistic treatment with pre-prosthetic planning and radiographs are crucial and aid decision making for long term success of the prosthesis irrespective of the number of implants or the type of prosthesis chosen.



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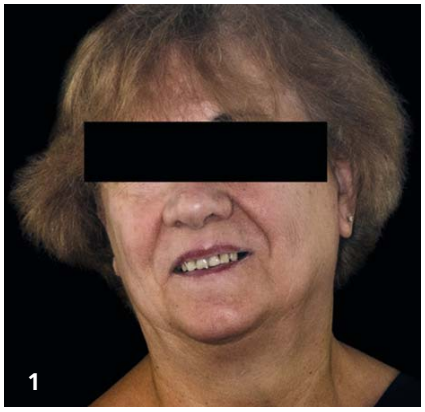
Three-unit bridge in the posterior area

A step-by-step clinical case report by Sergio Piano, Italy

Incorporating digital workflows into our treatments can provide numerous benefits, including increased precision and quality of results. Nevertheless, selecting the correct quality and design of materials for our treatments is just as crucial as performing a comprehensive decision-making process to define our clinical strategy and workflow. The following case report describes a smile makeover in a woman with high aesthetic aspirations. A digitised process, implant placement, and immediate implant loading were among them.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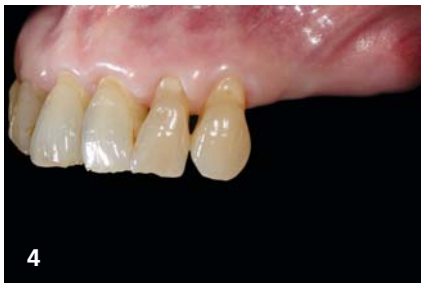
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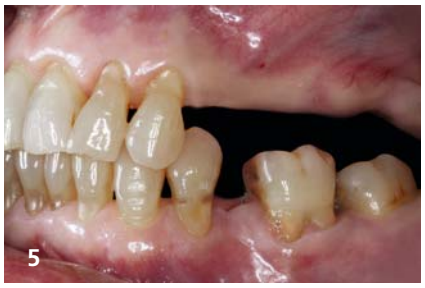
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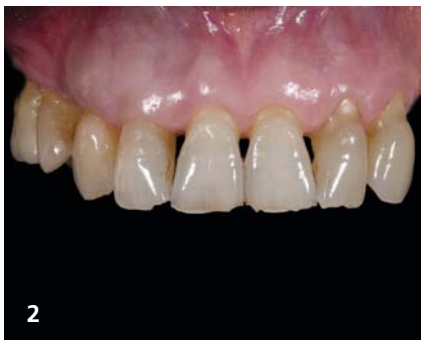
We met the patient's needs by using an efficient treatment protocol for implant placement and providing an aesthetic provisional and final restoration design using the Straumann® BLX implant made of Roxolid® and coated with a surface of SLActive® in combination with the digital workflow.

Initial situation

A 58-year-old female healthy patient presented to our office with the chief complaint of reduced masticatory function on the left side and the desire to improve her smile. Moreover, the patient manifested her wish of avoiding removable rehabilitations during any of the treatment phases and wanted to be treated with a reduced invasiveness procedure, as she has had previous unpleasant experiences with dental treatments. The extra-oral evaluation revealed a medium smile line with a dark area on the second quadrant due to the absence of premolars and molars (Fig. 1).

The intra-oral assessment exposed a partial edentulism maxilla, with the absence of teeth #17, #14, #24, #25, #26 & #27 and black triangles on the second sextant (Fig. 2). The occlusal view of the upper jaw showed a Kennedy Class II Applegate modification I with teeth slightly misaligned (Fig. 3). The lateral photo view showed a possible good amount of available bone in height (Fig. 4). The view of the left side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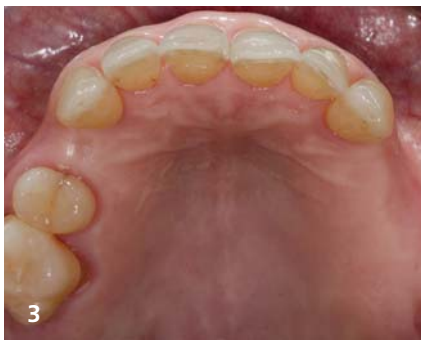
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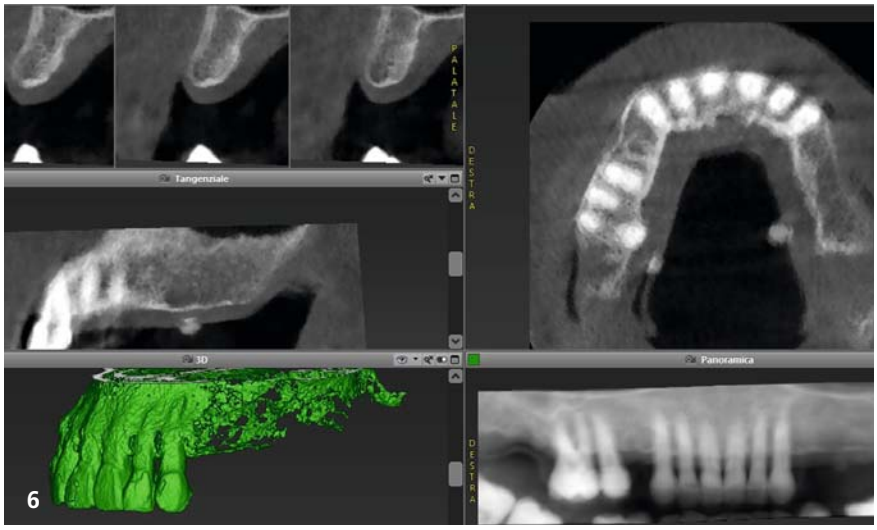

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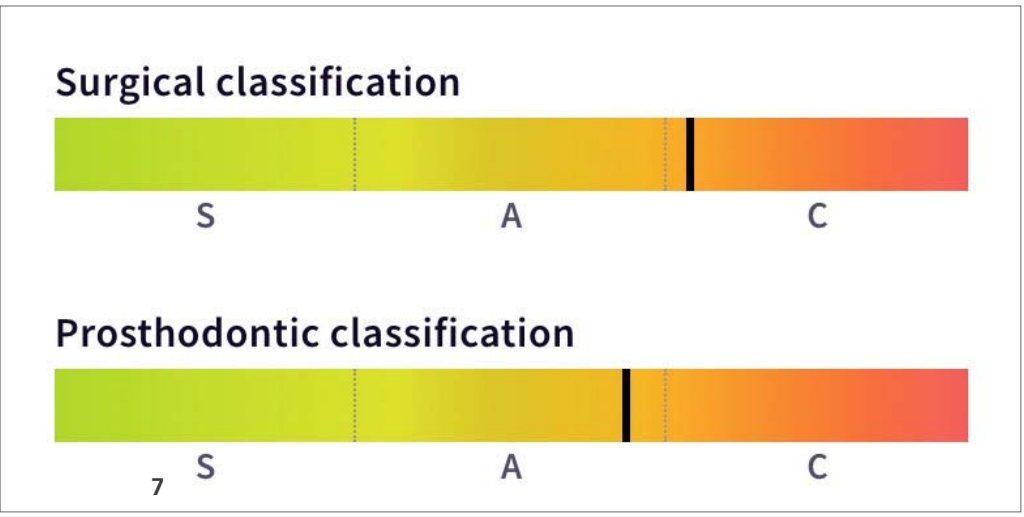

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of the mouth in occlusion showed the extrusion of teeth #34 and #36 (Fig. 5).

A CBCT exam visualised with the software coDiagnostiX® was used to assess the quality and quantity of bone available for implant placement (Fig. 6). In the region #24–#26, the assessment revealed adequate vertical and horizontal bone availability.

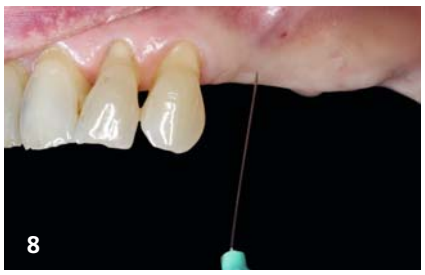
Treatment planning

Considering the patient's requests, the aims of the treatment were:

- To evaluate the placement of two implants in positions #24 and #26 to be restored with a fixed three-unit bridge.
- To consider the possibility of performing an immediate prosthesis on the implants, if a satisfactory primary stability is obtained: in this way, a pleasant aesthetic appearance is guaranteed from the beginning of the treatment.
- To consider the option of placing the implants with a computer-guided surgery and a flapless approach to reduce the invasiveness and to simplify the prosthetic workflow.

Taking the above aims into consideration, the following treatment options were presented and discussed with the patient:

1. Implant placement in positions #24 and #26 with no provisional restoration during the healing time. After implants' osseointegration, final restoration with a three-unit implant-supported bridge #24–#26.
2. Implant placement in positions #24 and #26 and, if the implant stability is optimal, immediate provisional implant-supported bridge. After implants' os-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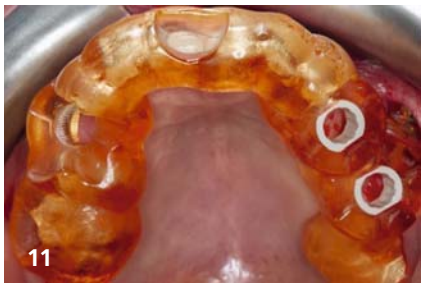
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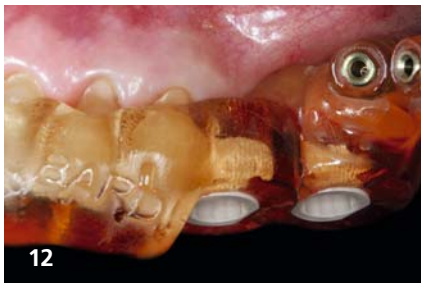
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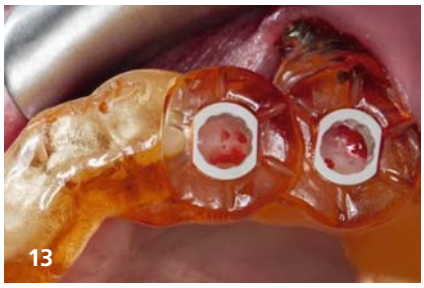
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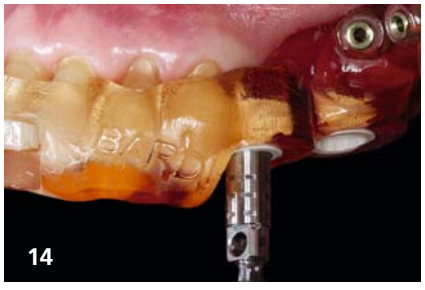
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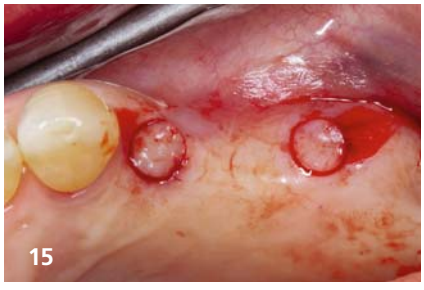
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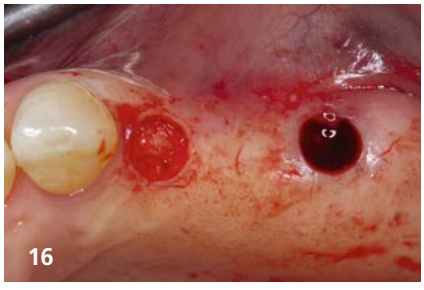
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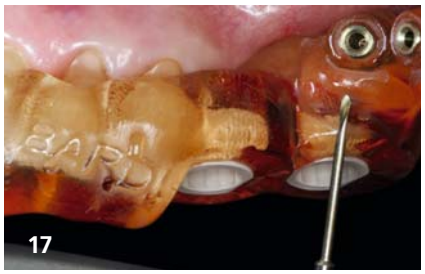
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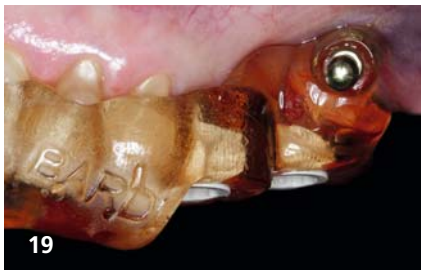
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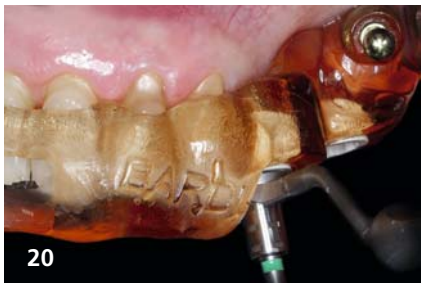
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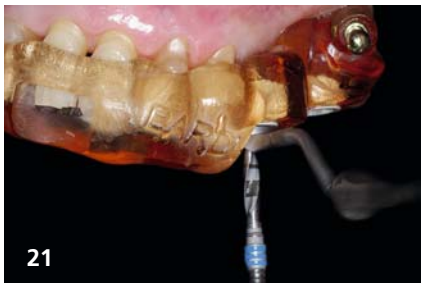
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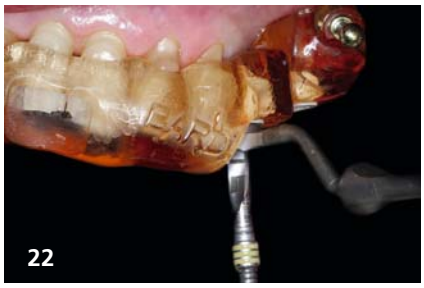
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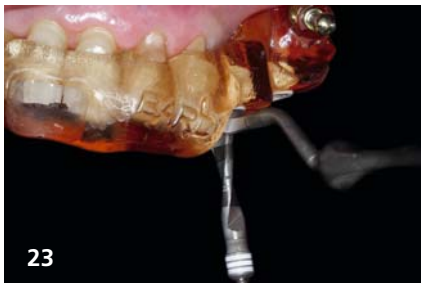
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seointegration, final restoration with a three-unit implant-supported bridge #24–#26.

3. Implant placement in positions #24 and #26 with a guided surgery approach and, if the implant stability is adequate, immediate provisional implant-supported bridge. After implants' osseointegration, final restoration with a three-unit implant-supported bridge #24–#26.

The SAC v2.0 assessment tool (based on ITI SAC Classification) was used to identify the degree of complexity and potential risk involved in the planned case (Fig. 7).

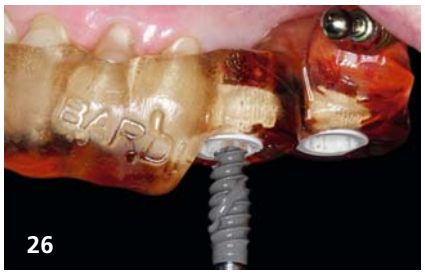
In order to make the final decision on treatment planning, pros and cons are evaluated considering the choice of a computer-guided implant positioning with an immediate prosthesis (three-unit bridge) for the replacement of the teeth #24, #25 & #26.

It was decided to choose option number 3 after discussing the risks, benefits, and treatment options; and considering the patient's age, medical conditions, and expectations. Thus, it was planned to treat the patient with Straumann® BLX implants in sites #24 and #26 with immediate prostheses (three-unit bridge) using computer-guided planning and surgery. The rational of the treatment was the following:

- The choice of a fixed implant-supported rehabilitation allowed to satisfy the request of the patient to avoid a removable prosthetic solution.
- The patient can be provided, as requested, with a fixed provisional bridge assuring a pleasing aesthetic appearance from the beginning of the treatment.
- The use of BLX implants, thanks to their specific shape, guarantees the high stability needed for the immediate prosthesis.
- The computer-guided planning and implant placement assure a surgical approach with reduced invasiveness and simplify the prosthetic procedures.
- The appropriate amount of keratinised gingiva allows for a flapless approach, thus minimising the surgical impact.
- A favourable site anatomy, a suitable bone availability, and a convenient amount of keratinised gingiva reduce the risk of aesthetic complications.

Treatment workflow included:

1. Preliminary data acquisition: intra- and extra-oral photos, impressions, creation of the diagnostic guide, and CBCT exam with the diagnostic guide in position (already collected).
2. Scanning of the cast model and the diagnostic guide seated on the model; creation of the corresponding STL files and the STL file related to the digital wax-up of the lacking teeth.
3. Processing of Dicom (CBCT exam) and STL (upper model, upper model with guide and digital wax-up) data in co-DiagnostiX® planning software to carefully plan the implant placement.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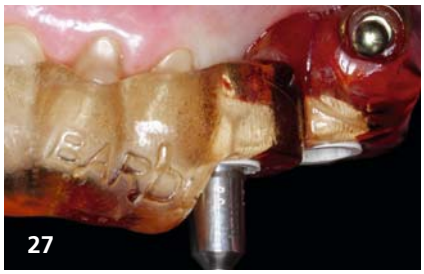
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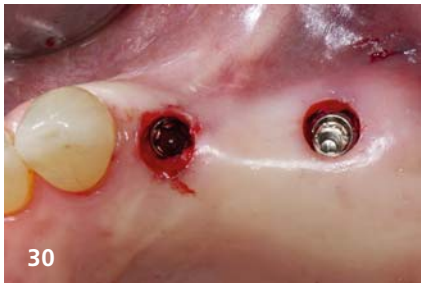
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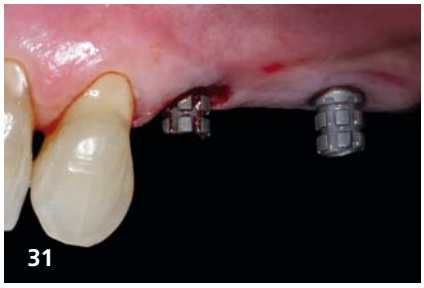
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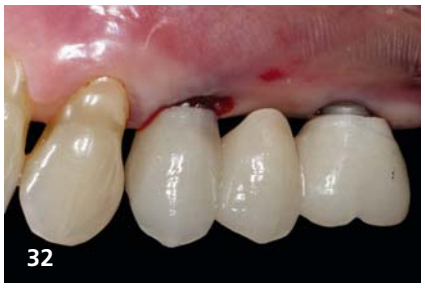
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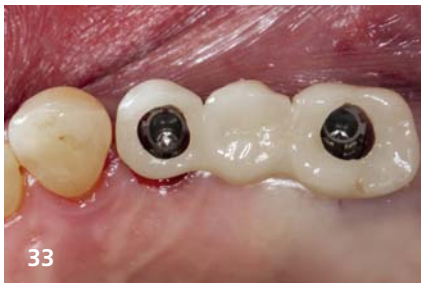
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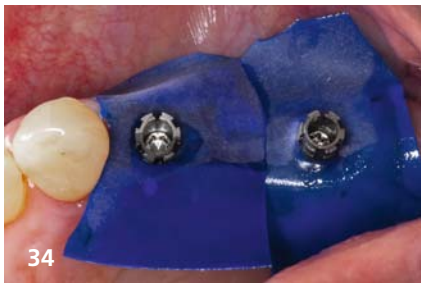
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4. Production of printed surgical guide and resin models via coDiagnostiX® plan.
5. Execution of the provisional bridge by the dental lab based on digital wax-up (on resin printed models).
6. Surgical phase: implants placement and provisional bridge positioning.
7. After the healing, final rehabilitation with a screw-retained bridge on implants.

Surgical procedure

The patient was directed to rinse her mouth with 0.12% chlorhexidine gluconate on the day of surgery. Anaesthetic infiltration was done with 2% lidocaine and 1:100,000 epinephrine in the area corresponding to the premolar/molar apexes and in the surrounding gingiva (Fig. 8).

A dedicated set of surgical instruments for the BLX implant guided surgery was used (Figs. 9 & 10).

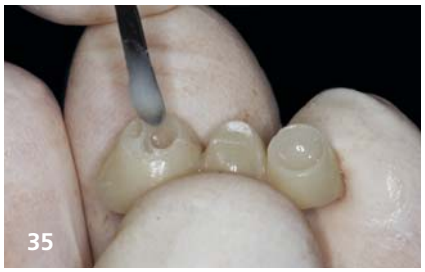
The guide was placed in the mouth and the stability and precision were verified through the windows created into the guide in specific positions of the teeth (Fig. 11). On the lateral view of the guide, it shows the sleeve dedicated to the pin fixation, which was essential to guarantee the perfect stability of the guide during the drilling procedures (Fig. 12). From the occlusal view of the guide, the areas of keratinised gingiva visible through the sleeves assured the possibility of performing a flapless implant surgery (Fig. 13).

A tissue punch, driven by the guide, was used with the purpose of removing the soft tissue layer. During this phase there was no need to fix the guide with the fixation pin (Fig. 14). Then the guide was removed, and it was easy to see the circular cut of the tissue punch (Fig. 15). The soft-tissue discs were then peeled away (Fig. 16).

The guide was kept in its precise position, and with the dedicated bur, the drilling procedure through the sleeve was then performed (Fig. 17 & 18).

The fixation pin, placed in the dedicated sleeve, allows the guide to remain in its stable position, and the drilling procedure can be carried out in a precise way. After the guide placement (Fig. 19), the milling cutter bur was used with the purpose of creating a flat surface for the precise work of the following drills. The specific handle reduced the dimension of the sleeve to those of the selected drill. This bur is the only one without a stop (Fig. 20). The pilot drill ø2.2 mm was used (Fig. 21), followed by the drill ø2.8 mm (Fig. 22), and finally the drill ø3.5 mm (Fig. 23). Each drill was used with copious sterile water, and the tip was moved back and forth to minimise overheating.

In accordance with the choice done during coDiagnostiX® planning, a BLX implant with 4.5 mm diameter and 12 mm length was used in position #24 (Fig. 24). The pin placed in the apical part of the implant was gently broken according to the manufacturer's instruction (Fig. 25).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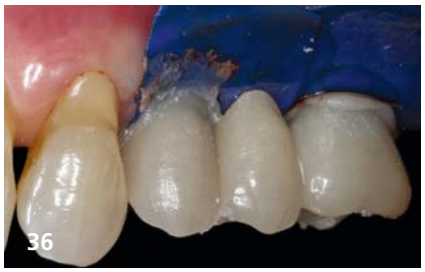
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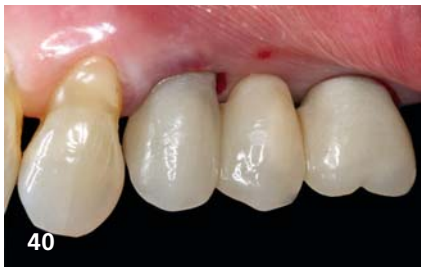
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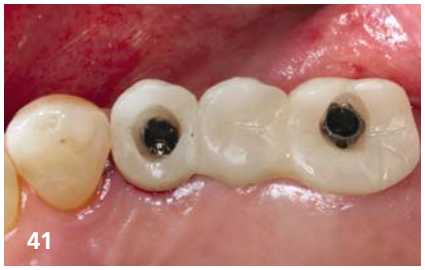
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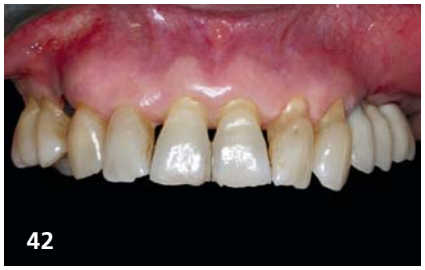
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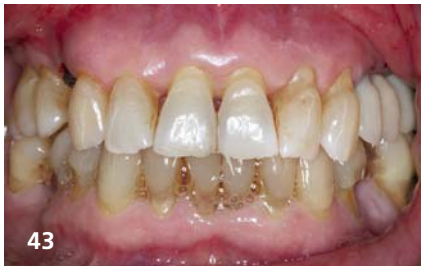
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The implant was then ready to be engaged into the sleeve for the perfect guidance in the prepared bone site (Fig. 26). The dedicated BLX transfer piece drives the implant in the correct position. The procedure will end as soon as the black line is in contact with the edge of the sleeve (Fig. 27). As done in the procedure related to the premolar, the molar site was prepared. Because the quality of the bone was not excellent in this site, the ø2.8 mm drill was the last one used. As seen in the procedure related to the premolar, the choice of the implant was made in accordance with the coDiagnostiX® planning (BLX with 4.5 mm diameter and 8 mm length).

After placing the implant, the insertion torque obtained was evaluated. The high values reached, allowed us to proceed with the immediate provisional bridge (Figs. 28 & 29).

In the occlusal view of the implants after the placement, we could appreciate an optimal 3D position (Fig. 30). The temporary abutments, customised by our dental lab, were screwed on top of the implants (Fig. 31). The temporary bridge was then checked in the patient's mouth in order to evaluate its precise seat on top of temporary abutments (Fig. 32). The seat of the temporary bridge was very precise due to the accurate planning and execution of implant placement, perfectly in line with the prosthetic design (Fig. 33).

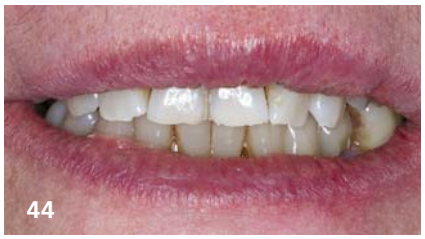
Prior to connect the bridge and the abutments with resin, the field was isolated by means of two pieces of dental dam. This procedure is very useful especially when a flap is raised, and it is not easy to obtain the ideal wet conditions for resin polymerisation (Fig. 34). Then, a thin layer of resin was placed into the temporary bridge (Fig. 35).

We can appreciate the temporary bridge in position, after the removal of the resin sheet that has allowed the precise placing of the bridge (Fig. 36). After the temporary bridge was unscrewed from the mouth, it was filled with resin in the spaces between bridge and abutments; and then the refinement procedures were done (Fig. 37).

The refinement procedure of the temporary bridge was performed firstly with the tungsten carbide bur, then with a rubber pre-polisher and finally with a polishing buff. It is important to create an ideal emergent profile of the bridge units and to have a completely smooth surface in contact with soft tissues (Fig. 38). A reverse angle view of the temporary bridge showed the correctness of the emergent profiles: in this way the bridge started the precise conditioning of soft tissues from the beginning of the implant healing (Fig. 39).

The temporary bridge was screwed on the implants (Figs. 40 & 41).

The chimneys were closed, and the smile line looked harmonious with the prosthesis well integrated into the patient's mouth (Fig. 42). The temporary bridge was not in full occlusal contact in order to reduce the risk of excessive loading on implants (Fig. 43). The smile of the patient immediately after the surgery (Fig. 44).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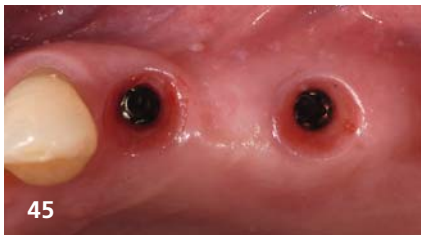
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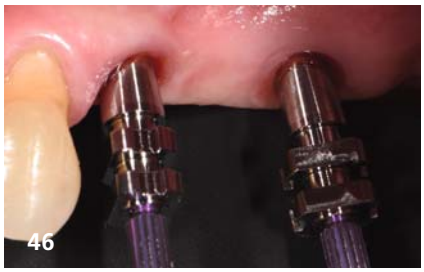
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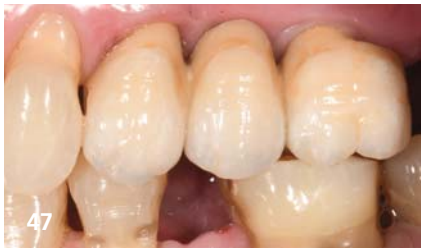
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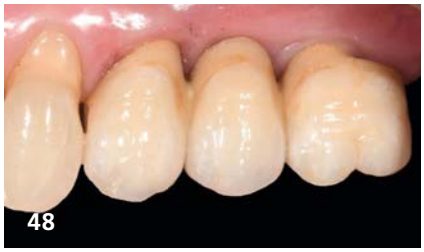
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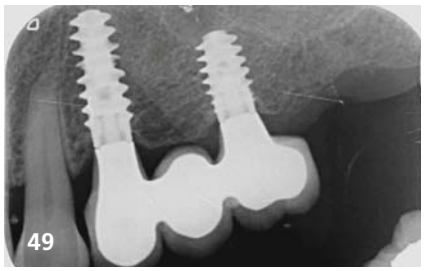
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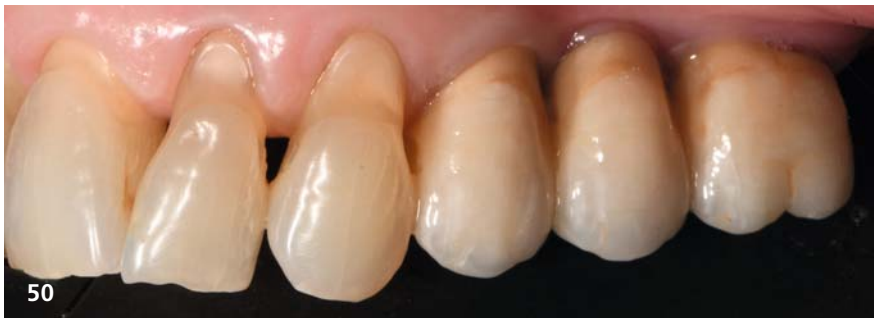
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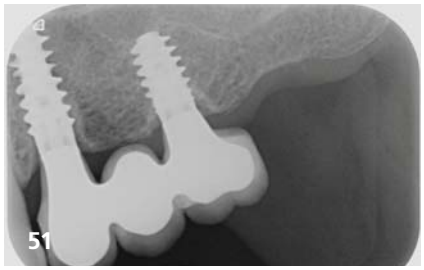
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The treatment at this point already met the patient's expectations, delivering the expected aesthetic and functional clinical benefits.

Prosthetic procedures

The patient reported no mechanical or biological issues at the three-month follow-up visit. Moreover, the clinical examination showed that the emerging profiles created by the provisional bridge were harmonious and natural. To prepare the final restoration; the temporary bridge was removed, and the soft tissues were evaluated. The tissues around the implants were healthy and with an optimal emergency profile (Fig. 45). Afterwards, a conventional impression was taken (Fig. 46).

The final restorations were screwed on implants 24 and 26 and the occlusal plane was corrected by making new restorations at the opposite jaw (Figs. 47 & 48). The final X-ray image showed the perfect integration of the implants and the precision of the prosthetic work (Fig. 49).

Treatment outcomes

The treatment outcome met the patient's aesthetic and functional expectations. The patient reported an improvement in her quality of life. She was involved in a maintenance programme with yearly follow-up visits. Two years later the patient is still very satisfied with the treatment outcome and the peri-implant tissues show an excellent condition (Figs. 50 & 51)

Conclusion

When indicated, immediate treatments can reduce the chair time and cost, maintain the gingival tissues and increase the comfort of our patients.

Acknowledgements

I would like to express my graditude to Dr Elisa Oneto for her great contribution to the prosthetic procedures and to Alessandro Giacometti for his excellent lab work.

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OSSTEM Implant announces opening of the new subsidiaries in Europe

Global company expands

South Korean company OSSTEM Implant is significantly expanding its business activities in Europe this year. In the first half of this year, OSSTEM opened new subsidiaries in Spain and France, and this will be followed in the upcoming months by the opening of other new subsidiaries, including in Netherlands or Portugal.

OSSTEM Spain is based at 32 Avenida de Manoteras in the Sanchinarro neighbourhood of Madrid.

This strategic move aims to enhance the company's share in the European dental implant market while extending its product offerings to new European customers.

Today, there is no doubt that dental implants represent one of the most effective methods of replacing missing teeth, and interest in them is constantly growing. OSSTEM Implant is currently the third-largest producer while in view of the sales volume it has ranked first for six consecutive years selling 7.9 million implants per year.* In the upcoming years, the company aims to increase its share in the European market, which is currently dominated by traditional European implant brands.

J.M. Lee, Executive Managing Director of OSSTEM Europe: "In the past 25 years, we have been able to convince dentists and their patients about the advantages of our high-quality and innovative prod-

Mr Miguel Nam (middle) with the OSSTEM Spain sales team.

Mr Sangdae Seo (middle) with the OSSTEM France sales team.

ucts. We believe that thanks to our expanded business network through subsidiaries, we will be able to reach more clients and offer them the possibility of modern and effective implantology services with more affordable price conditions."

Hybrid cooperation

The potential and opportunities perceived by OSSTEM Implant in these markets played a role in the decision to choose countries where it has direct sales representation. The company however has made clear its desire to maintain good relations with established business partners.

Minki Cho, European Sales Division Managing Director: "Since 2006, the dealer companies have been helping us establish ourselves in the European markets, for which we are very grateful. In the future, therefore, we will prefer a hybrid model of cooperation. Our subsidiary companies will focus on new business opportunities and building more market share. In this respect, we are sticking to our motto 'Together has no limits'."

The opening of new subsidiaries represents a significant cost-saving effect for the brand's existing dealers. Subsidiaries will take over the costs related to serving the market in the form of storage and distribution as well as marketing activities.

The opening of new subsidiaries also brings many new job opportunities. Sales representatives, specialists in finance, marketing, human resources, and distribution will find employment in individual countries.

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**2022 Implant Market Trends/Sales Analysis Report, Seoul National University Dental Hospital, Innovation Research and Support Center for Dental Science, issued 23.6.2023.*

Dentsply Sirona's Implant Solutions World Summit in Athens

Passion delivered and healthy smiles supported

More than 500 participants from 40 countries joined 50 international speakers at Dentsply Sirona's Implant Solutions World Summit, which took place in Athens, Greece from 8 to 10 June 2023. The three-day event brought together an outstanding group of professionals from the implant dentistry community in a setting steeped in history and scientific discovery.

Implant professionals from around the world came together at the Implant Solutions World Summit for three days full of knowledge exchange, inspiration, and peer-to-peer networking. The combination of innovative presentation formats, timely topics, opportunities to experience state-of-the-art solutions firsthand at the Inspiration Hub exhibition area, and remarkable setting, made the event a memorable one for participants.

A panel of experts guided the audience through several implant dentistry topics.

An abundance of learning opportunities

On the first day of the summit, participants could choose from seven master classes to kick off the programme's strong educational content. Digital dentistry was in focus throughout the programme with a special CLOUD session dedicated to how DS Core can support in making implant treatment easy and secure for file sharing, collaborating, and ordering directly from the lab.

Attendees also enjoyed engaging presentations through an innovative and interactive format in a special BATTLE session in which the audience took part in two lively, friendly and interesting debates: one between Dr Rodrigo Neiva and Dr David Barack and the other between Dr Mischa Krebs and Dr Gary Jones. Using an online tool, the participants contributed to the discussion, answered questions, and voted for the winners. Sustainability was also a topic of discussion as highlighted by Danish oral and maxillofacial surgeon Dr Malene Hallund, who was also one of the summit's programme chairs. Dr Hallund shared her experience of building a dental practice that is considerate of the environment. She also aims to attract employees who are similarly conscious about sustainability and feel a sense of ownership in the endeavour. The summit's final day of the scientific programme started off with parallel sessions discussing the aim of optimal aesthetics, questions around the desire for immediate implant placement, and dealing with risk factors in implant dentistry.

An expert panel guided the audience through several controversial topics in implant dentistry before the programme wrapped up with a FUTURE session focused on augmented reality and how its use can bring value in a dental context.

The Implants Solutions World Summit offered participants many opportunities to network and share knowledge and experience.

Supporting healthy smiles

In keeping with the theme of the Implant Solutions World Summit—"Passion Delivered"—Dentsply Sirona announced a USD10,000 donation to Smile Train, the world's largest cleft-focused organisation.

The two organisations entered a five-year renewable partnership in 2021, driven by the shared ambition to further the provision of safe, high quality, and expert cleft care from diagnosis through to comprehensive care delivery using the most advanced dental technology resources to serve the complete patient care continuum. Dentsply Sirona's on-site donation will help children with financial challenges obtain access to cleft care and help to create healthy smiles.

Building community

The Implant Solutions World Summit provided implant dentistry professionals a platform to come together to learn, form professional bonds, and network for the future. In addition to the educational programme attendees also had the chance to network with peers and enjoy the cultural sides of Athens with two social evenings. Dr Hallund remarked that, "It was a privilege to be part of this programme—to engage in so many informative discussions with colleagues. The summit truly brought a sense of community for professionals working in implant dentistry."

"Science, the humanities, and art are a big part of what Athens represents. It was the perfect place to come together with dental professionals who practise the science of medicine, the humanity of personal patient care and the art of creating unique and beautiful smiles," said Tony Susino, Group Vice President, Global Implant & Prosthetic Solutions at Dentsply Sirona. "It was an honour to bring together so many passionate professionals committed to lifelong learning and delivering the best care for their patients. At Dentsply Sirona, we are committed to supporting this type of peer-to-peer education."

The Implant Solutions World Summit truly was a representation of "passion delivered". Attendees walked away feeling excited and inspired for what the future holds—the Implant Solutions World Summit will be back! Stay tuned for more details coming soon!

Tony Susino, Group Vice President, Global Implant & Prosthetic Solutions at Dentsply Sirona, speaking to participants.

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Diving into dentistry excellence

The Association Dentaire Française Congress is the place to be

Every year at the end of November, the French Dental Association organises the Congrès de l'ADF, the leading event in the field of dentistry and continuing education in Europe, which uniquely combines in one single venue—the Palais des Congrès de Paris—a scientific conference open to all members of the dental team with an international exhibition that showcases all the latest dental technology.

CONGRÈS INTERNATIONAL ADF 28 NOV. – 02 DEC. 2023

A must-attend event for the dental profession

This year, from Tuesday, 28 November to Saturday, 2 December the ADF Congress offers 100 theoretical, practical, and interactive sessions led by 400 speakers.

The ADF Conference is not only a scientific landmark; it also provides all members of the dental team with practical solutions to the challenges they face in their day-to-day environment. It endeavours to meet all needs and to be attentive to dentists' expectations and demands and is built around daily practice and a holistic approach to patient care. "Join us at the ADF International Annual Dental Meeting for an exciting programme! Explore topics such as connective tissue grafting, minimally invasive endodontics, endodontic disinfection protocols, current recommendations in periodontology, traumatology, adhesion, and the challenges of the dental surgery of the future, with highly distinguished speakers. Don't miss this opportunity to be inspired, learn from experts, and enhance your skills. Register now and be part of this must-attend event for dental professionals worldwide!" says Dorothée Louis-Olszewski, ADF 2023 Scientific Director.

Ten unmissable sessions in English

The Conference features prestigious speakers—such as Eric Van Dooren, Florin Cofar, Giuseppe Giordano, Filippo Graziani, Dan Rechenberg, Thomas Connert, Massimo De Sanctis, Teresa Arias Moliz and Panos Papapanou, to name but a few—experts in their field who give talks and workshops with the aim to share their expertise with all their fellow dentists in a friendly and pragmatic way. The Congrès de l'ADF also provides a great opportunity to explore the viewpoints on dentistry of different countries such as Belgium, Italy, Romania, Switzerland, Spain as well as Israel, Lebanon, the United States, and Canada.

All sessions are open to all dental team members.

A major meeting place for the dental industry and dental health professionals

Organised in close collaboration with the Comident (the French dental trade and industry association), the ADF Exhibition, which grows larger and more varied every year, features exhibitors from all over the world, ready to inform and advise visitors on their products and services. Over 25,000 visitors—dentists, dental assistants, dental technicians, and members of the dental industry—come each year to the ADF exhibition to discover the latest technologies on offer, presented across 12,830 m² over four levels.

The attractiveness and relevance of the topics addressed, in line with the latest trends, make this international programme an event you will not wish to miss, in a prestigious setting near the Arc de Triomphe and the Champs Elysées in magical Paris.

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Straumann

Ceramic Healing Abutments: the first step to harmonious soft-tissue healing

These healing abutments for Straumann bone level implants enable aesthetics from the day of surgery and offer favourable conditions for soft-tissue attachment, thereby supporting a healthy peri-implant environment. Their well-proven zirconia material helps surgeons and prosthodontists who are looking for less plaque attachment (smoother surface compared to titanium) and they support soft-tissue healing from the day of surgery. In general, more favourable soft-tissue attachment around zirconia than around titanium can be observed, with blood circulation similar to that around a natural tooth, as well as a more mature and pronounced soft-tissue integration. This comes with an ease of use entailing aspiration security thanks to the integrated screw and a colour-coding to clearly identify the corresponding prosthetic platform.

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How a simple quality assessment on dental implants became a grassroots movement

"We fight dirty"

The CleanImplant Foundation performs tests on the quality of randomly selected, sterile-packaged dental implants in cooperation with accredited testing laboratories. We interviewed Dr Dirk U. Duddeck, Managing Director and Head of Research of the foundation.

Dr Duddeck, you founded the foundation in 2016. How well recognised is it today?

The foundation is proud to acknowledge the 150,000 Facebook followers who look to us for guidance. There are 40 ambassadors and key opinion leaders who present our findings at congresses and continuing education courses around the world. Through their efforts, the negative impact of factory-related contaminants on implant surfaces is now understood to be a key risk factor in implant failure.

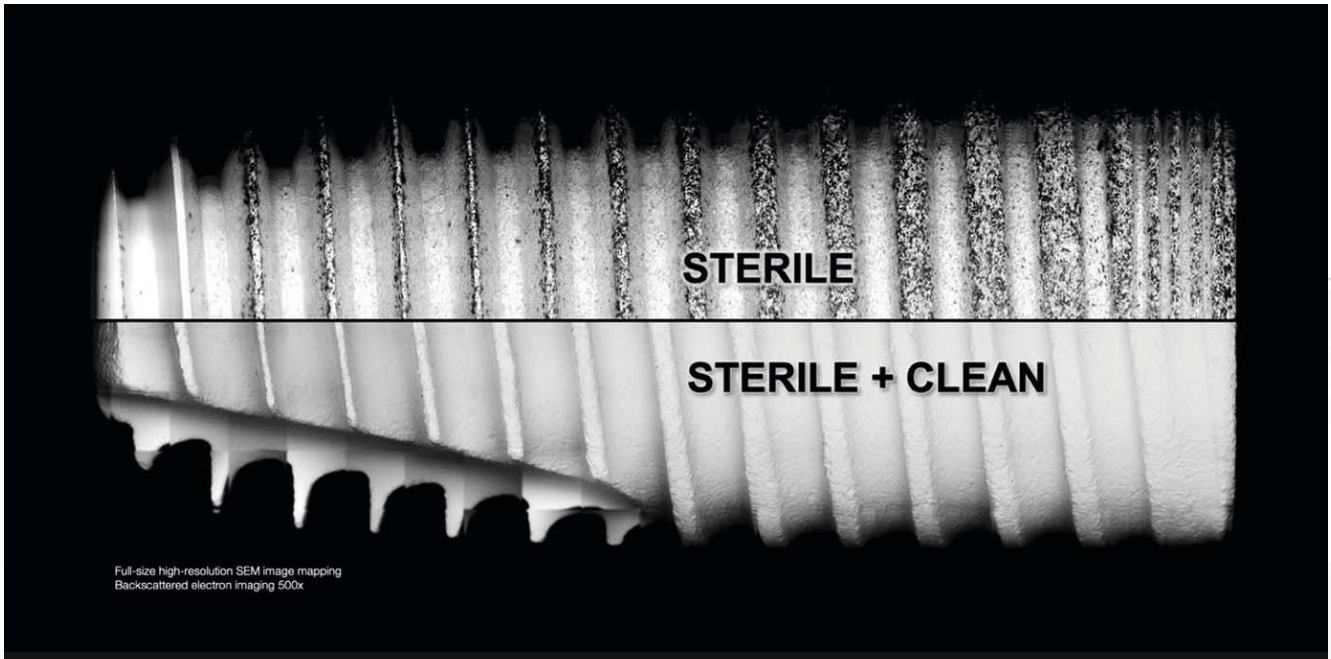
Last year, the CleanImplant Foundation expanded its footprint by establishing an office for North America in New York City. This year, we will open a third office in Seoul, South Korea. As a result of our activities on three continents, the CleanImplant initiative has seen dramatic growth in its membership, well beyond our expectations. Our grassroots movement, carried forward by "CleanImplant Certified Dentists", is delivering the strongest possible message to the implant manufacturers; they must do better.

What is the feedback from manufacturers?

To date, we have analysed well over 300 implant systems from all leading brands. Our mandate is to encourage manufacturers and suppliers to engage in a constructive dialogue. Implant manufacturers react very differently when we draw their attention to unexpected analysis results. Some companies are eager to listen to our suggestions and work with us to find solutions to optimise their quality management. In the past, this has often led to substantial and sustainable improvements in production. However, some companies have not yet cooperated with our efforts, as they have chosen not to believe that cell-toxic impurities on a sterile packaged implant are clinically relevant, despite evidence to the contrary.

What are these contaminants on implant surfaces?

SEM imaging has identified particulate contaminants of metallic origin, containing chromium, iron, nickel, or copper-tin compounds. Frequently, significant organic, i.e. carbonaceous impurities are found. Time-of-Flight Secondary Ion Mass Spectrometry (ToF-SIMS) demonstrates plastic particles made of polysiloxane, synthetic polymers, and thermoplastics. We have also discovered thin-film residues of dodecyl benzenesulfonic acid (DBSA), an aggressive and surface-active chemical cleaning agent, classified as a hazardous substance, or the quaternary ammo-



SEM image mapping of two new, ready for use sterile-packaged implants after unboxing. Both implants carry the CE label and have FDA clearance.

nium compound didecyl-dimethylammonium chloride (DDAC), which is commonly used as a biocide or green algae remover. If appropriate manufacturing controls and packaging techniques are followed, none of these chemicals should be identifiable on sterile-packaged implants, not even in residual quantities.

What effects do these impurities possibly have on implant healing and long-term success?

Carbon-containing contaminants, mainly plastic particles with a size of 0.2 to 7.2 µm, are classified as pro-inflammatory. When these impurities detach from the surface during implant insertion, macrophages take up the particles by phagocytosis and release pro-inflammatory cytokines. The result is an expanding zone of soft-tissue damage and inflammation. In addition, TNF-α, IL-1β, and IL-6 secretion modulate osteoclast differentiation that can lead to early bone loss at the implant site. In summary, factory-related impurities are the most underrated risk factor for peri-implantitis, cortical bone loss, and implant failure. That's the reason for our catch phrase "We fight dirty".

Can you tell us more about implants that showed no significant impurities after unboxing and that have been awarded the Trusted Quality seal?

The seal of quality, which underlines the first-class surface purity of dental implants, is awarded by the CleanImplant Foundation's scientific advisory board only after a rigorous peer-reviewed analysis and testing process. The certification is valid for two years and then must be renewed. To date, the following implant systems carry the coveted "Trusted Quality" seal: Kontact S (Biotech Dental), whiteSKY (bredent group), UnicCa (BTI Biotechnology Institute), (R)evolution and Patent/BioWin! (Champions-Implants), SuperLine (Dentium), Astra Tech EV (Dentsply Sirona Implants), In-Kone (Global D), ICX-Premium (medentis medical), AnyRidge and BLUEDIAMOND (MegaGen), T6 (NucleOSS), Prama (Sweden & Martina), Inverta (Southern Implants) and SDS 1.2 and SDS 2.2 (Swiss Dental Solutions). Test results on other systems are pending. In addition, we tested the products of two contract manufacturers of ceramic implants, the CeramTec Group and Komet Custom Made. Both received CleanImplant's "Certified Production Quality" awards after thorough analyses.

CleanImplant was an exhibitor at the joint congress of the EAO and DGI in Berlin in September. What did the foundation focus on at this event?

We installed a high-resolution scanning electron microscope (SEM) in the exhibition area at the CleanImplant booth C06, thanks to a cooperation with Thermo Fisher Scientific, a world leader in analytical equipment. Dentists who brought sterile-packaged samples of their implant system could have them examined on site to determine the degree of surface contamination. Visitors received information on all implant systems that had previously been tested as free of contamination. As an example of transparency, implant suppliers received detailed information about the comprehensive testing process and equipment used.

Dr Dirk U. Duddeck inspecting an implant mounted for SEM analysis in a particle-free cleanroom.

What message did you take away from the congress in Berlin?

We were happy to share our story, our research and our passion for ethical standards of care with visitors to our booth. Many have joined us on this mission; many more are joining us as they embrace the new standard of quality standards for the devices we use to care for our patients. Our calling is to ensure that all involved in implant-based dentistry are partners in excellence.

Thank you very much for the interview.

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DEXIS IOS Solutions expands its portfolio

Bringing new end-to-end digital workflows to dental practitioners

DEXIS IOS Solutions is pleased to announce the expansion of its portfolio and ecosystem through new digital end-to-end workflows. The new and enhanced workflows are designed to align with the objective of DEXIS IOS Solutions to support dental practitioners in accelerating their workflow, resulting in increased productivity and improved patient experience. To reinforce this objective, DEXIS IOS Solutions is focused on three crucial principles: ease of use, productivity and practice expansion. Practitioners can now easily expand their range of services through aligner and denture treatments as well as in-house printing, offering their patients personalised and innovative care.

The new prescriptive workflows are being developed concurrently with ongoing innovations in the broader Envista portfolio, beginning with a new orthodontic workflow in combination with Ormco Spark that enables practices to easily add aligner therapy to their treatment options. A new patient engagement application within IS ScanFlow enables practitioners to show patients a simulated outcome of their orthodontic treatment, enabling them to visualise the treatment outcome chairside. Integrated digital transfer of the datasets to Ormco Spark streamlines the process, enabling patients to promptly initiate treatment.

"By further integrating DEXIS IOS Solutions into the broader Envista offerings, we are providing dentists with the solutions they need to provide exceptional and personalised care for their patients. We are committed to helping dental practioners improve patient outcomes and grow their practice through digital innovation," said Amir Aghdaei, president and CEO at Envista Holdings Corporation.

DEXIS IOS Solutions has also collaborated with SprintRay 3D-printing ecosystem for definitive ceramic crowns, to simplify in-office printing and make same-day restorations a reality. SprintRay Cloud Design leverages artificial intelligence (AI) to streamline the design of crowns, appliances, and surgical guides within minutes. Practitioners can scan the patient with any DEXIS intra-oral scanner and upload the dataset directly from either DTX Studio Clinic or IS ScanFlow to the SprintRay portal, eliminating the need to manually select files, enter redundant patient information and design the restoration or appliance.

"By combining DEXIS intra-oral scanners with SprintRay's ecosystem, dental practitioners can offer same-day delivery of crowns and appliances, increasing their productivity by completing more procedures in a shorter amount of time," said Aghdaei. "Offering same-day restorations can give practitioners a distinct competitive advantage, as patients often prefer the convenience of single-visit appointments, enabling dental practitioners to expand their services and attract patients seeking fast and convenient dental treatment."

To further enhance the capabilities of the DEXIS IOS Solutions porfolio, IS ScanFlow v1.0.9 now includes a denture scanning workflow that streamlines the treatment planning process by combining the capture of the bite registration and prosthetic along with the edentulous and denture scans, eliminating the

manual process of matching and aligning data sets by the lab. The software also provides embedded scan tips to optimise and simplify the edentulous data acquisition.

In addition, DEXIS IOS Solutions is introducing the IS 3800 wired scanner, which offers the same high-speed performance as the award-winning IS 3800W. The IS 3800 wired scanner is highly ergonomic and weighs just 190 g without the cable, making it one of the lightest intra-oral scanners available. It complements the IS 3800W wireless scanner, which weighs only 240 g, and is considered the lightest wireless intra-oral scanner in the industry.

The latest DEXIS IOS Solutions innovations provide dental practitioners with access to intuitive technology that simplifies and streamlines treatment, thereby boosting productivity. With an extended ecosystem and diverse range of new treatment options, practitioners can partner with Envista for access to prescriptive end-to-end workflows or opt for more open workflows, which enable collaboration with their preferred lab or manufacturer. The new workflows further align with the Envista intention to digitise, personalise, and democratise dental care, enabling productivity and predictability of dental practitioners to provide optimal patient treatment.

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MEMBERSHIP REGISTRATION FORM

BDIZ EDI
Bundesverband der implantologisch tätigen Zahnärzte in Europa e.V.
European Association of Dental Implantologists

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Date of Birth: .....

Practicing implantology since: .....

Member of other Societies:

☐ ICOI ☐ BDO ☐ DGI ☐ DGZI ☐ DGMKG ☐ EAO

Continuing education Courses: .....

.....

Fellowship status / diplomate status in implantology

☐ Yes ☐ No ☐ Organisation .....

Entry in BDIZ EDI Directory: ☐ Yes ☐ No

(For information on BDIZ EDI Directory of Implant Dentists see overleaf)

The annual membership fee for:

FULL MEMBERSHIP

☐ Full member – clinical	EUR345.00
☐ Assistant dentist / young professional (up to 5 years after graduation)	EUR172.50
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Membership cannot be confirmed until payment is processed. Method of payment is by bank transfer. Please use the following banking account

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Membership cards will be sent upon receipt of the annual subscription fee.

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Please return the completed registration form to:
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	Swedish Dental Expo	Stockholm Sweden	15–17 November 2023	https://www.dentalexpo.se/ ?sc_lang=enStockholmsmässan & Föreningen Svensk Dentalhandel
	Swedental & the Annual Dental Congress	Umeå Sweden	15–17 November 2023	https://tandlakarforbundet.se/ riksstamman-swedental/ Sveriges Tandläkarförbund
	ADF 2023	Paris France	28.11–02.12 2023	https://www.adfcongres.com/fr/ Association Dentaire Francaise
12/2023	Badisches Forum für Innovative Zahnmedizin	Baden-Baden Germany	08–09 December 2023	https://oemus.com/events/bydomain/ badisches-forum.de
01/2024	30th Annual Conference of the Swiss Society for Endodontology (30th SSE Conference)	Lausanne Switzerland	19–20 January 2024	https://www.endodontology.ch/ content/1-home/wa230757_sse_ broschure_2024.pdf

EDI Journal – Information for authors

EDI Journal – the interdisciplinary journal for prosthetic dental implantology is aimed at dentists and technicians interested in prosthetics implantology. All contributions submitted should be focused on this aspect in content and form. Suggested contributions may include:

- Original scientific research
- Case studies
- Product studies
- Overviews

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Submissions should be made in digital form. Original articles will be considered for publication only on the condition that they have not been published elsewhere in part or in whole and are not simultaneously under consideration elsewhere.

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Pages should be numbered consecutively, starting with the cover page. The cover page should include the title of the manuscript and the name and degree for all authors. Also included should be the full postal address, telephone number, and e-mail address of the contact author.
Manuscripts can be organised in a manner that best fits the specific goals of the article, but should always include an introductory section, the body of the article and a conclusion.

Illustrations and tables
Each article should contain a minimum of 20 and a maximum of 50 pictures, except in unusual circumstances. Our publishing house attaches great importance to high quality illustrations. All illustrations should be numbered, have a caption and be mentioned in the text.
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Each article should contain a minimum of 10 and a maximum of 30 references, except in unusual circumstances. Citations in the body of the text should be made in numerical order. The reference list should be typed on a separate sheet and should provide complete bibliographical information in the format exemplified below:
[1] Albrektsson, T.: A multicenter report on osseointegrated oral implants. J Prosthet Dent 1988; 60, 75–82.
[2] Hildebrand, H. F., Veron, Chr., Martin, P.: Nickel, chromium, cobalt dental alloys and allergic reactions: an overview. Biomaterials 10, 545–548 (1989).

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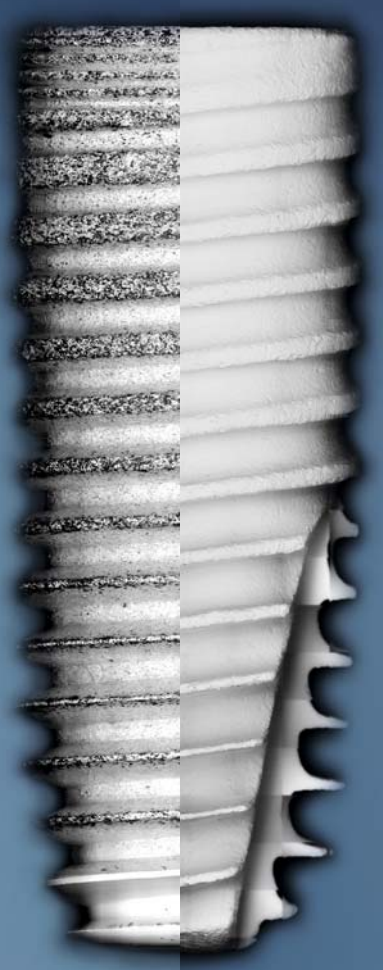

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