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11TH EDITION OF
INTERNATIONAL CONFERENCE ON

DENTAL INNOVATIONS AND TECHNOLOGIES

"Innovating Dentistry: Bridging Technology, Sustainability, and Patient Care"

19 20 21
March, 2026
Singapore

IN-PERSON:

Village Hotel Changi
1 Netheravon Rd,
Singapore 508502

CE APPROVED
CE ACCREDITED
28 CREDITS

VIRTUAL:

Greenwich Mean Time (GMT)

DENTAL 2026

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HYBRID EVENT

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DENTAL 2026

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Welcome Message

David Geoffrey Gillam

Queen Mary University of London, United Kingdom

Dear Attendees, Presenters, Organizing Committee and Distinguished Guests

The invitation to write this welcome message is both an honour and a privilege and as such I am very grateful to the Organizing Committee of Dental 2026. On behalf of the Organizing Committee, I would like to warmly welcome you to the 11th Edition of International Conference on Dental Innovations and Technologies which will be held in the vibrant city of Singapore or alternatively online, if you are unable to present in-person. The theme of this year's conference is" Innovating Dentistry: Bridging Technology, Sustainability, and Patient Care." You will have the opportunity to listen to well-known speakers on a wide range of topics over the course of the conference. There will also be an opportunity for colleagues to present their area of expertise to their colleagues, which in turn will help foster cooperation between colleagues across the research world. I hope that you will not only enjoy the conference but also establish links for future research as well as foster friendships that will endure for years to come.

Welcome Message

Preetinder Singh

Academy of Oral Surgery, United States

On behalf of the Organizing Committee, it is my distinct honor to welcome you to the 11th Edition of International Conference on Dental Innovations and Technologies, to be held from March 19–21, 2026, in Singapore, with a comprehensive hybrid format enabling both on-site and virtual participation.

This edition of the conference is strategically aligned with the theme "Innovating Dentistry: Bridging Technology, Sustainability, and Patient Care," reflecting the profession's ongoing transformation in response to rapid technological advancements, increasing emphasis on sustainable healthcare practices, and the imperative of delivering superior, patient-centered outcomes.

The conference will serve as a distinguished global forum for dental clinicians, academicians, researchers, policymakers, and industry leaders to engage in high-level scientific exchange and collaborative dialogue. The scientific program has been meticulously designed to feature keynote addresses by internationally renowned experts, advanced research presentations, evidence-based clinical discussions, hands-on workshops, and interdisciplinary panel sessions that address both current challenges and future directions in dentistry.

The hybrid structure underscores our commitment to global accessibility and knowledge dissemination, enabling participants from diverse regions to contribute meaningfully to the discourse. Through this platform, we aim to foster innovation, encourage sustainable clinical practices, and strengthen the integration of emerging technologies into routine dental care.

I extend a warm invitation to join us for this prestigious event and to be part of a collective effort to shape the future of dentistry through excellence in science, education, and clinical practice. Looking forward to your valued participation and to welcoming you to a truly impactful conference experience.

Welcome Message

Vitoldo Antonio Kozlowski Junior

Ponta Grossa State University, Brazil

Dear Conference Attendees,

The 11th Edition of International Conference on Dental Innovations and Technologies is recognized as a premier international event for exchanging and discussing cutting-edge research that expands science and technology to societal and economic goals. By reaching out in public and private ways, both regionally and internationally, the meeting from March 19 to 21, 2026, in futuristic Singapore, has seized urgent opportunities to promote an understanding of dental science, innovations, and technologies. It is a pleasure, and an honor, to invite you to join us at this prestigious international conference. On behalf of the organizing committee, I would like to welcome you in advance, whether you are participating in-person or online in hybrid mode. We sincerely hope that the active presentations program has led to greater coverage, part of the effort to convey reliable scientific information and broaden understanding. The International Meeting, started in 2017 and now in its 11th edition, has enjoyed success for over a decade, continuing to generate ideas for initiatives geared towards action in various dental specialties. The conference also considers new opportunities for collaboration among institutions, industry, and people. We invite you to join us in Singapore 2026, to salute those whose efforts have inspired, conducted, and provided beneficial contributions and support for nearly years. It is absolutely critical to our ability to respond rapidly to new situations, as it allows us to influence change on behalf of dental science, technology, and society. Furthermore, our originality and creativity are vital to the continuous evolution of dental science. Maintaining independence and integrity in scientific development enables us to gain a better understanding of problems and recognize effective solutions to dental issues. Welcome to Singapore, 2026!

Welcome Message

Zvi G. Loewy

New York Medical College, United States

Dear Conference Attendees,

It is an honor and great pleasure to write a brief welcome message for the upcoming conference entitled "11th Edition of International Conference on Dental Innovations and Technologies". We are living in an era of rapid basic and clinical science advancements in oral health. To that end, the conference agenda is truly reflective of a multi-disciplinary approach linking basic, clinical and public health research in advancing oral healthcare. In line with this, our conference offers a variety of research topics including: (1) periodontology; (2) prosthodontics; (3) public health dentistry; (4) oral cancer; and (5) oral and systemic health. This conference is a great opportunity for participants including young and senior researchers, scientists, clinicians and academicians to gain knowledge with the up-to-date research in dentistry and oral health.

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About Magnus Group

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

About Dental 2026

Welcome to the **11th Edition of the International Conference on Dental Innovations and Technologies**, scheduled to be held in **Singapore and virtually** from **March 19–21, 2026.**

Under the theme **"Innovating Dentistry: Bridging Technology, Sustainability, and Patient Care,"** **Dental 2026** will convene leading researchers, clinicians, academicians, and industry professionals from across the globe to explore emerging technologies and transformative advancements in modern dentistry.

The conference program has been carefully designed to deliver high scientific value through keynote lectures, oral and poster presentations, and interactive workshops. These sessions aim to foster scholarly exchange, interdisciplinary collaboration, and insightful discussions on current challenges and future directions in dental science and clinical practice.

This abstract book presents a curated collection of original research, clinical studies, and innovative methodologies that reflect the evolving landscape of dental innovation. Each contribution highlights significant progress and evidence-based approaches that continue to enhance patient care, technological integration, and professional standards.

Whether attending in-person or virtually, participants will benefit from meaningful networking opportunities, knowledge sharing, and engagement with internationally recognized experts. We look forward to your valuable participation as we collectively advance the future of dentistry.

About
CE Accreditation

About

The Continuing Education (CE) credits available at **DENTAL 2026** hold significant value for participants, recognizing and affirming their dedication to continuous learning and professional growth. Earning CE credits brings numerous advantages, such as advancing one's career, upholding professional credentials, expanding knowledge, and fostering networking opportunities.

By attending **DENTAL 2026** and acquiring CE credits, individuals showcase their commitment to ongoing education, elevate their professional standing, and open doors to career progression. Moreover, meeting a minimum CE credit requirement is often obligatory for maintaining certifications or licenses in various fields.

The **DENTAL 2026** conference not only offers ample networking opportunities with peers and experts but also facilitates the expansion of professional connections and the cultivation of potential collaborations. Notably, each attendee will receive a total of **28 CE credits** at the conference.

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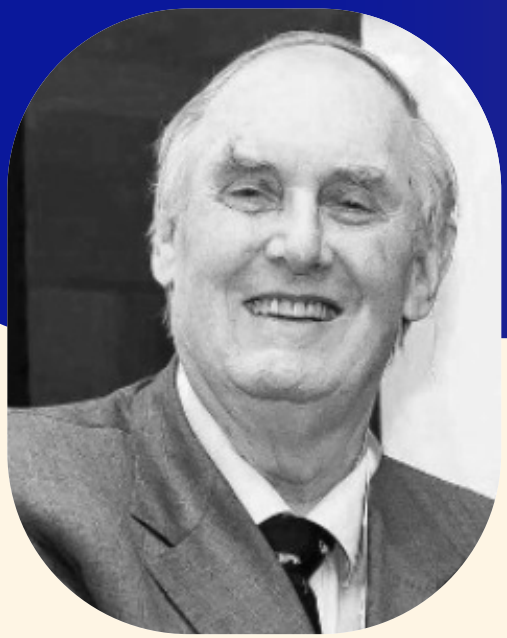
KEYNOTE PRESENTATIONS

Arnaldo Castellucci

Dr. Castellucci MD, DDS, Italy

Working length and the last third generation of apex locators

The success of endodontic treatment is dependent on the complete elimination of the contents of the root canal system and the sealing of all the pathways that communicate between the endodontium and the periodontium. In other words, the final result of the endodontic treatment must be the same as that which would have been obtained by the extraction of a compromised tooth. So, it is obvious that the knowledge of the endodontic anatomy with all its possible variations and the correct determination of the working length are extremely important, so that during the course of the treatment not even the smallest portions of the canal system are forgotten. The methods currently available to the clinician for measuring the correct working length are numerous and today we have the latest generation of apex locators to work at the “Electronic Apex”. The 3rd generation of Apex Locators is extremely precise, it is not influenced by the content of the root canal and it has been specifically designed not to locate the “constriction” or the “contact” with the periodontal ligament, but the “foramen”, since it is based on the thickness of the surrounding dentin.



Christopher Turner

Spacemark Dental, United Kingdom

Biography: Christopher Turner qualified from the Royal Dental Hospital of London with the degree of bachelor of dental surgery with distinctions in 1968 and spent the first few years working in general practice before undertaking higher training in restorative dentistry in London and Newcastle upon tyne. During this time, he passed the fellowship in dentistry examinations of the Royal College of Surgeons of England and gained his master of dental surgery degree. In 1979, aged 34 years, he was appointed as a consultant/senior lecturer in the University of Sheffield Dental School with the remit to establish new department and a self-contained multi-surgery unit, separate from the School, for final year dental students to help them make the transition to qualified general practitioner. This was the first unit of its kind in the UK, has been copied and continues in the same building today. Then in 1984, he moved to an NHS appointment as director of dental services in Salisbury. He took early retirement from the NHS in 2000 to establish a multidisciplinary private referral practice before retiring in 2012. Christopher has always had an interest in prevention and plaque control and the links between diabetes mellitus and periodontitis, and is the inventor of the Chooseabrush® method to help patients with gingival recession optimise their oral health.

Periodontitis: A co-morbidity factor in Diabetes Mellitus (DM). The implications for dentistry

In 1999 Periodontal Disease (PD) was thought to be the sixth complication of Diabetes Mellitus (DM) because this latter group of patients has a 3-4 times greater risk of developing PD when compared with non-diabetics. This rises to 10 times for smokers. More recent research has concluded that DM and PD are inter-related, one disease affecting the other and vice versa. The exact mechanism is probably related to inflammation as similar blood markers are raised in both diseases, the dental origin of which is from micro-organisms in mature dental plaque. From the medical point of view there are five complications of DM namely cardiac, vascular, renal, ophthalmic and neurological that can be visualised as a simple hub called DM with spokes for the above complications. However, the evidence has shown that the severity of all these five complications is worse when patients have active, uncontrolled PD. When PD is treated, there is an improvement in glycaemic control. Good oral hygiene is a critical component of glycaemic control. These results have led to the conclusion that both DM and PD should be hub diseases. Therefore, PD is not a separate complication of DM or spoke but a co-morbidity factor acting by: Modifying the severity of another disease and modulating the

severity of diabetic complications in the manner of a volume switch, a new model relationship. When DM and PD are treated together there may be a synergistic effect. A method of sharing results between doctors and dentists is proposed. Dentist have an important role to play in prevention. A method of effective and efficient control of interdental plaque will be presented.

Jainish Patel, David Geoffrey Gillam*

Institute of Dentistry Barts & the London School of Medicine and Dentistry, QMUL, London UK

Biography: David Geoffrey Gillam graduated from Edinburgh Dental School in 1977 and has been actively involved in Dentistry for over 45 years. He has worked in both clinical practice and university dental hospitals, as well as in industry (1998-2001), initially with SmithKline Beecham and later with Block Drug Company. From 2003 to 2008, he worked with a Clinical Research Organization as a Research Dentist. He also served as a full-time Clinical Reader (Associate Professor) in Translational Research related to Dentistry at Bart's and The London School of Medicine and Dentistry, QMUL in London (2009-2022). Currently, David is a part-time Professor at QMUL, although he no longer practices dentistry. His primary research interest lies in Periodontology, particularly the management of dentine hypersensitivity, and he has also developed an interest in the development of dental materials for both professional and consumer use. David has published over 100 papers on various dental topics and has contributed to several books, both as an Editor and as a chapter contributor.

Efficacy of a BioMin F toothpaste compared to conventional toothpastes in remineralisation and Dentine Hypersensitivity (DH): An overview

Dentine Hypersensitivity (DH) and enamel demineralisation are prevalent oral health concerns. BioMin toothpaste, containing Fluoro-Calcium Phosphosilicate (FCPS), has emerged as a potential alternative to conventional toothpastes for both remineralisation and DH management. This literature overview analyses the efficacy of a Biomin F toothpaste compared to selected conventional toothpastes in addressing DH and remineralisation. The review examines *in vitro* and *in vivo* studies (clinical trials) to assess the relative benefits and limitations of both approaches. Analysis of controlled clinical trials utilising VAS scores, Schiff Cold Air Sensitivity Scores (SCASS), and SEM imaging revealed that Biomin F exhibits a distinctive temporal efficacy gradient: Modest immediate tubular occlusion (18.1% sensitivity reduction at one-minute) but superior long-term efficacy (61.1% reduction at 6 weeks). Scanning electron microscopy from *in vitro* studies have also confirmed progressive mineralisation within the dentinal tubules (50% occlusion at three weeks increasing to 75% at 6 weeks) through the formation of acid-resistant fluorapatite crystals. This overview concludes that BioMin F may be appropriate for sustained rather than immediate relief, although it is recognised that more standardised long-term studies are required to validate its efficacy in the treatment of remineralisation and dentine hypersensitivity.

Roshani Kulendran, David Geoffrey Gillam*

Institute of Dentistry Barts & the London School of Medicine and Dentistry, QMUL, London UK

Biography: David Geoffrey Gillam graduated from Edinburgh Dental School in 1977 and has been actively involved in Dentistry for over 45 years. He has worked in both clinical practice and university dental hospitals, as well as in industry (1998-2001), initially with SmithKline Beecham and later with Block Drug Company. From 2003 to 2008, he worked with a Clinical Research Organization as a Research Dentist. He also served as a full-time Clinical Reader (Associate Professor) in Translational Research related to Dentistry at Bart's and The London School of Medicine and Dentistry, QMUL in London (2009-2022). Currently, David is a part-time Professor at QMUL, although he no longer practices dentistry. His primary research interest lies in Periodontology, particularly the management of dentine hypersensitivity, and he has also developed an interest in the development of dental materials for both professional and consumer use. David has published over 100 papers on various dental topics and has contributed to several books, both as an Editor and as a chapter contributor.

Knowledge and attitudes of dental professionals in the evaluation of Molar Incisor Hypomineralisation (MIH): Awareness, diagnosis and treatment approaches - An overview

Prescribing denture adhesives has been viewed by many prosthodontists as a means of Molar-Incisor Hypomineralisation (MIH) is a developmental enamel defect of systemic origin that presents both diagnostic and therapeutic challenges in dentistry. Despite its increasing prevalence, several studies indicate some variability in clinicians' knowledge, confidence and attitudes towards MIH management. While awareness of the condition is relatively high, differentiating MIH from other enamel defects remains a common difficulty. Treatment approaches range from fluoride-based therapies and composite restorations to Preformed Metal Crowns (PMCs), with inconsistencies in clinical decision making. This review explores the current understanding of MIH treatment approaches among dental students and practitioners, together with the perceived barriers to effective treatment of the condition. Additionally, the review highlights gap in education, resources and clinical training that contribute to variations in management. By analysing the published literature, this review underscores the need to enhance professional competency to optimise MIH treatment and improve patient outcomes.

Elizabeta Popova Ramova

Faculty of dental medicine, MIT University Skopje, Republic of North Macedonia

Biography: Elizabeta Popova Ramova has completed his PhD in Medicine at the Department of PM & Reha, Faculty of Medicine Nis, University of Nis, R. Serbia in 2010. She has been engaged in educational activity since 2005. She worked as a professor at the Medical School from 2007 to 2018. In 2020, she was selected as an Assistant Professor at MIT University, in the scientific field of PM & Reha. Scientific activity: published 210 studies, 17 of which have an impact factor. She was on a visiting study in Germany in 1997, 2000 and in ISICO, Italy in 2016. Foreign language uses: Serbian, English, German. She has several certificates for active participation in international congresses, conferences, a license for doctor's practice, for low energy laser treatment, musculoskeletal echosonography, aromatherapy and nutrition. Scientific opus: Spinal deformities, pain management, alternative methods based on medical evidence, non-pharmacological treatment. Member of ISPRM, Cochran Rehabilitation, Editorial Board of 14 sciences journals abroad.

Non-pharmacological treatment of pain in dental medicine

Pain in dentistry is a significant symptom, which is often one of the strongest symptoms. It can occur for several reasons such as neuralgia, inflammation, swelling or postoperatively, as well as in temporomandibular dysfunction. The aim of our presentation is to present non-pharmacological treatments of pain in dentistry in postoperative conditions.

Material and Method: The physical procedures that are available to us in the postoperative period should be chosen carefully because of their indications and contraindications for application. Cold, light therapy, TENS, and electroacupuncture, as well as Magnetotherapy and functional typing are options.

Results: In the acute state of pain, cold applied as cryomassage and cryowraps is the method of choice. In the subacute stage, swelling can be eliminated with manual lymphatic drainage, cold application and TENS electrogymnastics. In the chronic stage 7 days after the intervention, the application of light therapy in the form of an LED mask, TENS, electroacupuncture and magnetotherapy are options of choice.

Discussion: In the acute state of the surgical intervention, anesthesia with local anesthetic application is inevitable. In the postoperative course, many of the analgesics can interact with other medications that the patient is taking and prolong the bleeding period. In such conditions, the choice of non-pharmacological interventions is justified individually according to the general condition of the patient.

Conclusion: Cold applications for toothache have always been the method of choice. But modern applications have a more practical application. Light therapy and TENS can be the method of choice due to the easy and practical application of 30 minutes a day and can be applied by the dental nurse.

Keywords: Non-Pharmacological Treatment of Pain, Dentistry.

Dr. Emmanuel Samson

Consultant Total Dental Care & Implant Centre, India

Biography: Dr. Emmanuel Samson earned his Bachelor's in Dental Surgery in India in 1999 and completed his Master's in Endodontics at KLE Society's Institute of Dental Sciences, Belgaum, India, in 2003. Building on this strong academic foundation, he has established a distinguished career in both academia and clinical practice. Dr. Emmanuel has served as Professor & Head at Government Medical College and Hospital, Miraj, India, and also as Professor, Head, and Postgraduate guide at HSRSM Dental College and Hospital, India. His extensive clinical experience, spanning nearly 20 years in endodontics, includes affiliations with prestigious institutions such as Manipal (Cure & Care), Total Dental Care, and an Honorary Consultant role at Inlaks and Budhrani Hospital. His areas of expertise and research interests include cytotoxicity of endodontic sealers, hydraulic condensation in endodontics, and one-step synthesis gels.

Enhancing root canal success: Strategic use of orifice opener, one-step synthesis gels & orifice barriers

Modern endodontics comprises of chemico-mechanical phases aimed at eliminating microorganisms to prevent apical periodontitis. According to Swartz et al., the failure rate of endodontically treated teeth is nearly double when adequate post-endodontic restoration is absent. The four key phases: Access and mechanical preparation, chemical cleaning, filling, and endodontic sealing-each phase plays a critical role in ensuring successful outcomes.

Coronal flaring of root canals is a vital technique in contemporary cleaning and shaping procedures, as it enables unobstructed access and enhances the effectiveness of subsequent steps. Specialized nickel-titanium instruments, known as orifice openers or shapers, are designed with a conical shape to effectively widen the canal.

Silver Nanoparticles (AgNPs), have gained interest in this context because they can penetrate hard-to-reach areas, such as dentinal tubules, effectively inhibit the growth of microorganisms like Enterococcus faecalis. Every effort should be made to prevent infectious contamination. To ensure long-term success, the use of one-step synthesis gels for enhanced disinfection is recommended.

The American Association of Endodontists emphasizes in a white paper that a definitive coronal restoration is an integral part of the root filling process to prevent recontamination of the pulp space. Roghanizad and Jones further advocate for placing a coronal seal at the orifice, recommending the replacement of 3mm of coronal gutta-percha to enhance protection.

To ensure long-term success, the use of orifice openers for effective canal shaping, one-step synthesis gels for enhanced disinfection, and orifice barriers after final obturation should be strongly emphasized as critical techniques for preventing recontamination, apical periodontitis and for promoting durable outcomes.

Keywords: Orifice Openers, One-Step Synthesis Gel, Orifice Barriers & Apical Periodontitis.

Khamis A. Hassan*, Salwa E. Khier

Global Dental Research Centre, Vancouver, British Columbia, Canada

Biography: Dr. Hassan is Professor of Operative Dentistry and Senior Clinical Consultant at Global Dental Research Centre in Vancouver, British Columbia in Canada. Dr. Hassan introduced 3 innovative restorative techniques for controlling the detrimental effects of composite shrinkage stress in 1987, 2005 & 2021. The 1st entitled: "The Modified Incremental Filling Technique for Class II Composite Restorations" & published in Journal of Prosthetic Dentistry. The 2nd entitled "The Split-increment Horizontal Layering Placement Technique for Class I Composite Restorations" & published in General Dentistry. The 3rd entitled: "Semi-Split Bulk Filling Technique in Large Occlusal Bulk-Fill Resin Composite Restorations" & published in Journal of Oral Medicine and Dental Research.

The coordinated triad of spatial, temporal, and biomechanical strategies: Managing the where, when, and how of shrinkage stress in bulk-fill resin composite restorations

Background: Polymerization shrinkage and the resultant shrinkage stress at the tooth–restoration interface both remain principal causes of marginal gap formation, postoperative sensitivity, and early failure of direct composite restorations.

Objective: Present a pragmatic Triad Framework (Spatial-Temporal-Biomechanical) to manage polymerization shrinkage stress in direct posterior bulk-fill resin composite restorations and show how semi-split placement technique and delayed gap closure approach described by Hassan & Khier integrate into this Triad framework.

Methods: Synthesis of mechanistic principles and clinically applicable placement strategies organized into three pillars with a practical chairside workflow.

Results: Coordinated application of (1) Spatial segmentation to reduce local effective C-factor, (2) Temporal modulation of polymerization (gap closure delay and stress-relaxation curing) to permit viscous flow before gelation, and (3) Biomechanical reinforcement and load management to avoid functional magnification of residual stresses appears to reduce interfacial stress concentration, pulpal floor gap formation, and early marginal breakdown.

Conclusions: The Triad Framework provides a conceptually simple and clinically applicable pathway for stress management in large/deep occlusal bulk-fill resin composite restorations when combined with Hassan & Khier's semi-split placement technique and delayed diagonal gap closure approach.

Clinical Significance: Applying spatial, temporal, and biomechanical modulation in an integrated fashion can reduce postoperative sensitivity and improve short- and potentially long-term integrity of direct posterior composite restorations.

Khoa Le

Eyes of AI, Chief Executive Officer, Australia

Biography: Khoa Le is a seasoned Machine Learning Specialist, with over two decades of experience in quantitative analysis, advanced computational analytics, Artificial Intelligence (AI), and Machine Learning (ML). His expertise spans a wide range of domains such as supervised and unsupervised machine learning, reinforcement learning, computer vision, natural language processing, and deep learning. Backed by a solid academic background, Khoa holds a Bachelor's degree in Actuarial Studies and Commerce, as well as a Masters in Finance. Khoa has excelled in creating state-of-the-art machine learning algorithms, specially tailored for various sectors including finance and healthcare, with a particular emphasis on enhancing the accuracy and efficiency of computer vision systems for X-ray analysis.

AI-enhanced diagnostics for better patient care and communication

Artificial Intelligence (AI) is rapidly transforming many areas of healthcare, and dentistry is at the forefront of adopting these technological advances to enhance patient care and the overall chairside experience. Recent studies show that patient expectations for AI-driven solutions are steadily increasing, and clinicians require tools that support accurate diagnosis, effective treatment planning, and the reduction of iatrogenic errors. AI-based dental applications now play a critical role in meeting these needs by helping reduce human factors such as fatigue, variability, and cognitive overload.

Across various imaging modalities, including CBCT, panoramic, periapical, bitewing, and cephalometric radiographs, AI systems enable clinicians to visualize anatomical structures with greater clarity, perform automated analyses and measurements, identify abnormalities and incidental findings, and generate personalized treatment recommendations. These capabilities improve diagnostic consistency and strengthen patient understanding of their oral health conditions.

This presentation explores the current landscape of AI in dentistry and demonstrates how state-of-the-art algorithms can reduce diagnostic inconsistencies, prevent unnecessary or inappropriate treatments, and support earlier and more accurate clinical decisions. It also examines emerging opportunities, future developments, and the challenges that must be addressed to ensure safe integration into daily practice.

By aligning advanced technology with patient-centered care, AI has the potential to transform communication, improve clinical outcomes, and elevate the overall standard of dental practice. This presentation highlights these innovations and their growing role in delivering more efficient, accurate, and communicative dental care.

Prof. Dr. Laurindo Moacir Sassi PhD, MSc

Erasto Gaertner Hospital Cancer Center, Mackenzie Evangelical University Hospital, Guest professor at the Pontifical Catholic University of Paraná (PUCPR), Brazil

Biography: Prof. Dr. Laurindo Moacir Sassi–DD, MSc, PhD; ICD. Oral & Maxillofacial Surgery; PhD; MSc; DDS; Department's Chief Oral and Maxillofacial Surgery (Chief in Chair Oral and Maxillofacial Surgery). Erasto Gaertner Hospital Cancer Center-Curitiba–PR-Brazil; Residence Coordinator of (CTBMF)-Erasto Gaertner Hospital Cancer Center; Member of the (CTBMF) Service-Department of Otorhinolaryngology, Mackenzie Evangelical University Hospital-PR; Guest Professor at the Pontifical Catholic University of Paraná; Member of the Brazilian College of Oral and Maxillofacial Surgery and Traumatology; Member of the Brazilian Society of Stomatology and Oral Pathology-SOBEP; Member International Journal of Oral & Maxillofacial Surgery; Book Author: "Manual Prático para Desenvolvimento de Projetos de Pesquisa e Teses". Publishing company: Santos. 2011; Book Author: "25 anos de prevenção de câncer bucal no Paraná: Hospital Erasto Gaertner (1989 a 2013)" Publishing company: Appris. 2013.

A new approach to bilateral le Fort I/II midface reconstruction with a Microvascularized Fibular Flap (MFF)

Introduction: Resection of facial tumors involving the maxilla and mandible often causes significant functional and aesthetic sequelae, affecting speech, mastication, swallowing, and self-esteem. Factors such as advanced staging, aggressive tumor biology, complex anatomical location, and failures in prevention programs contribute to extensive resections. These procedures represent multidisciplinary challenges, especially when anatomical defects exceed the possibility of simple local repairs. The complexity of tissue loss drives the continuous improvement of reconstructive techniques. Reconstructions with microvascular fibular flaps have been routine in our institution since 1995, which motivates us to constantly seek surgical alternatives that provide more comfort to patients. Our focus is to restore function, aesthetics, and facial expression. Unique challenges in each case, promoting quality of life and facilitating the social reintegration of patients.

Objective: To present a technique using a Microvascular Fibular U-Shaped Flap (US-MFF).

Method: This technique is indicated for patients who require reconstruction of Le Fort I/II maxillary defects due to tumor resection, necrosis, or trauma. Osteotomy of the fibular bone is performed in three segments. The first and third segments aim to reconstruct the left and right

upper alveolar crest and maxillary reinforcement. The middle segment is used to reconstruct the anterosuperior region of the maxilla. The flap is U-shaped. System 2.0 miniplates and screws are used to fix the segments to each other and to the Zygomatic Complex (ZC) in the posterior region. In the second surgical procedure, approximately 3 months later, a bone graft from the iliac crest is placed, with two buttresses in the canine fossa joined to the fibular segment with the anterior Z-C.

Case Report: Female patient, 20 years old, white, with a history of a boating accident with a Jet Ski, causing bilateral horizontal maxillary avulsion, Le Fort I/II type. The patient sought specialized care for late reconstruction of the defects. Reconstruction was proposed and performed using the US-MFF technique. The procedures did not present vascular complications and showed satisfactory stability between the bone segments. After 5 years, there was satisfactory evolution and installation of dental implants and rehabilitation. Aesthetics and function were restored.

Conclusion: The approach described, using the microvascularized fibular flap reconstruction technique, resulted in satisfactory results in aesthetics and function, and overcomes technical challenges commonly found in this region. It is believed that this US-MFF technique contributes significantly to the restoration of the anatomy of the maxilla and bilateral zygomatic complex, as well as to the rehabilitation of speech and facial expression, promoting new bone formation and improving the quality of life of patients.

Preetinder Singh

Academy of Oral Surgery, United States

Biography: Dr. & Prof. Preetinder Singh is a globally recognized Periodontist, Oral Implantologist, and academician, widely respected for his clinical expertise, academic contributions, and leadership in dental innovation. A Gold medalist in his field, he has dedicated his career to advancing periodontology, oral implantology, laser dentistry, and dental education worldwide. Prof. Singh currently serves as a Professor at WAGRO University, Greece, and UCAM, Spain, and holds an international faculty position as Senior Professor at the Universal School of Health, Florida, USA. His academic roles reflect a commitment to fostering global standards in dental education and clinical training. Prof. Singh is a sought-after international keynote speaker, having delivered lectures and conducted training in over 30 countries, including the USA, Canada, UAE, Iran, Iraq, Germany, India, Syria, Italy, Australia, Austria, Uk, Libya, Morocco, Thailand, Greece, Germany, Vietnam, Serbia, Singapore, Japan, Malaysia, New Zealand, Bulgaria etc. and many more. His presentations are known for their scientific depth, practical insights, and futuristic vision of dentistry. Authored 5 textbooks and has 55 publications to his name. He is on Editorial Board of 10 International journals of repute. In addition to his academic and clinical roles, he holds multiple prestigious international leadership positions: Vice Director, World Federation of Laser Dentistry (North American Division), Headquarters in BRAZIL, Executive Director, Dental Artificial Intelligence Association (USA), International Ambassador, Academy of Oral Surgery (USA), Regent, Global Summit (USA), His excellence in dentistry has been recognized by leading global organizations. He has been featured among the Top 100 Dentists of the World, and his clinical centre has been honored by Leading Implant Centres (LEADING CENTERS GmbH, Switzerland) for its excellence in implantology. A visionary in integrating artificial intelligence into dental practice and education, Dr. Singh continues to shape the future of dentistry through innovation, research, and global collaboration.

Dealing with peri-implantitis: An insight to various treatment regimens

As one in six patients receiving implant therapy are likely to show signs of peri-implant diseases with varying degrees of severity throughout the lifespan of the implants, clinicians will be confronted with peri-implant complications requiring appropriate management. The ideal management of peri-implant infections should focus both on infection control of the lesion, detoxification of the implant surface, and regeneration of lost support. Treatment options can be surgical or nonsurgical. Host's medical status, defect configuration, aesthetic outcome, ability to access for plaque control post-treatment, and the patient's wishes are key factors to consider. The purpose of this presentation is to provide a contemporary synopsis on the management of peri-implantitis with emphasis on explanation.

Dr. Ranjitkumar Patil

Professor and Head, Dept. of Oral Medicine and Radiology, Faculty of Dental Sciences, King George's Medical University Lucknow, India

Biography: Dr. Ranjitkumar Patil (DOB: 14 April 1971 is currently working as professor and Head, Department of Oral Medicine & Radiology and Ex Dean at Faculty of Dental Sciences, King George's Medical University, Lucknow. He completed BDS (1992) and MDS (1998) from Govt. Dental College, Nagpur, and has over 27 years of academic, clinical, and research experience. He has served in various prestigious institutions and has guided postgraduate students extensively. His major interests include early detection and management of oral cancer, head & neck imaging, and orofacial pain. Dr. Patil has been Co-Principal Investigator in multiple research projects and has over 67 publications in reputed journals with significant contributions to oral cancer biomarkers.

Serum and salivary interleukin-1β level in oral precancer: An observational study

Background: Oral Potentially Malignant Disorders (OPMDs) such as Oral Submucous Fibrosis (OSMF) and Oral Leukoplakia (OL) are associated with a risk of malignant transformation into oral cancer. Interleukin-1β (IL-1β), a pro-inflammatory cytokine, may serve as a biomarker for early detection and disease progression. Comparative evaluation of serum and salivary IL-1β levels may support non-invasive diagnostic approaches.

Aim: To evaluate and compare serum and salivary IL-1β levels in OSMF/OL patients and healthy controls, and to assess their potential as biomarkers for early detection of OPMD.

Materials and Methods: A prospective observational study was conducted on 40 subjects aged 18–65 years, divided into two groups: Group I (OSMF/OL, n=20) and Group II (healthy controls, n=20). Salivary and serum IL-1β levels were quantified using ELISA. Statistical analysis was performed using unpaired t-test and Chi-square test, with significance at $P<0.05$.

Results: (1) Serum IL-1β levels were significantly lower in Group I compared to Group II (P=0.001). (2) Salivary IL-1β levels did not differ significantly between groups (P=0.807). (3) Within both groups, salivary IL-1β levels were significantly higher than serum levels (P=0.000 for Group I; P=0.045 for Group II).

Conclusion: Serum IL-1β levels may serve as a prospective biomarker for predicting malignant transformation in OPMD. Although salivary IL-1β levels were elevated compared to serum levels in both groups, their diagnostic significance remains inconclusive and requires further evaluation through larger multicentric studies.

Rolf Ewers

Medical University of Vienna, Austria

Biography: Professor Rolf Ewers is currently Chairman of the CMF Implant Institute Vienna, Austria. Raised in Germany, he studied Medicine and Dentistry in Freiburg, Germany. His Residency was started as a first year Surgery Resident at the Downstate University in Brooklyn, USA, continuing his training as a Cranio-Maxillo-facial and Oral Surgeon and finishing with his PhD in Freiburg, Germany. Since 1980, he was for 9 years Deputy Chairman of the University Hospital for Oral-Maxillofacial Surgery in Kiel, Germany. Until October 2012, for 23 years he was the Chairman of the University Hospital of Cranio-Maxillofacial and Oral Surgery in Vienna, Austria.

Graftless revolution: Short® implants as a solution for severely atrophic jaws

We report 15 years of experience with Short® and extra Short® Bicon implants in the extremely atrophic maxilla, mandible and in Fibula grafts. All patients have been treated with CAD/CAM produced metal free hybrid fiberglass-resin Trinia® prostheses. Our cohort includes by now 67 patients, mostly treated with 5.0mm extra Short® implants. Due to the synergy of these two components, in accordance with Wolff's law, we observed bone gain even in the implants that were splinted. Due to these successful results, we changed our restorative method of supporting prostheses from four implants to three implants. In the maxilla, we place the middle implant in the incisive foramen and the nasopalatinal canal. In conclusion we can state that the Short® and extra Short® implants we have used should be functional loaded, if there is Synergy with TRINIA prostheses.

Sergey Suchkov[1-13,15*], Shawn Murphy[16,17], Laila Akhlaghi[18], Holland Cheng[14]

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Biography: Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, graduated from Astrakhan State Medical University and was awarded with MD. In 1985, Suchkov maintained his PhD as a PhD student of the I.M. Sechenov Moscow Medical Academy and Institute of Medical Enzymology. In 2001, Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia. From 1989 through 1995, Dr Suchkov was being a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004-a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). In 1993-1996, Dr. Suchkov was a Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. At present, Dr Sergey Suchkov, MD, PhD, is: Research and Development Director, National Center for Human Photosynthesis, Aguascalientes, México. Senior Scientific Advisor, InMedStar, Russia-UAE. Member, The Russian Academy of Natural Sciences, Moscow, Russia. Member, New York Academy of Sciences, USA. Dr. Suchkov is a member of the: American Chemical Society (ACS), USA. American Heart Association (AHA), USA. European Association for Medical Education (AMEE), Dundee, UK. EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU. ARVO (American Association for Research in Vision and Ophthalmology). ISER (International Society for Eye Research). Personalized Medicine Coalition (PMC), Washington, DC, USA.

Personalized and Precision Medicine (PPM) as a unique healthcare model through biodesign-inspired translational applications and upgraded business marketing to secure the human healthcare and biosafety

Traditionally a disease has been defined by its clinical presentation and observable characteristics, not by the underlying molecular mechanisms, pathways and systems biology-related processes specific to a particular patient (ignoring persons-at-risk). A new systems approach to subclinical and/or diseased states and wellness resulted in a new trend in the healthcare services, namely, Personalized and Precision Medicine (PPM).

Despite breakthroughs in research that have led to an increased understanding of PPM-based human disease, the translation of discoveries into therapies for patients has not kept pace with medical need. It would be extremely useful to integrate data harvesting from different databanks for applications such as prediction and personalization of further treatment to thus provide more tailored measures for the patients and persons-at-risk resulting in improved outcomes and more cost effective use of the latest health care resources including diagnostic (companion ones), preventive and therapeutic (targeted molecular and cellular) etc.

Translational researchers, bio-designers and manufacturers are beginning to realize the promise of PPM, translating to direct benefit to clinical practice. For instance, companion diagnostics tools, theranosticums, molecular imaging and targeted therapies represent important stakes for the Biopharma in terms of market access, of return on investment and of image among the prescribers. So developing the next-generation medicines and diagnostic tools requires changes to traditional clinical trial designs, that result in new types of data. Making the best use of those innovations and being ready to demonstrate results for regulatory bodies requires specialized knowledge that many clinical development teams do not have.

PPM has revolutionized also oral health and disease management by enabling tailored treatment approaches based on individual genetic, molecular, and microbiome profiles. For instance, tissue engineering, regenerative medicine, incorporating Platelet-Rich Plasma (PRP) and Bone Morphogenetic Proteins (BMPs), have enhanced tissue healing and repair in dental procedures. By embracing PPM resources, preventive screening, and the strategic use of micronutrients and targeted drugs, dental care can become more effective, reducing the incidence of oral diseases and improving patient outcomes. Utilizing biomarkers and point-of-care technologies, clinicians can improve early diagnostic accuracy and tailor treatments to individual needs. By integrating patient-specific genetic, molecular, and pharmacogenomic data into clinical processes, this emerging paradigm in dentistry known as PPM-guided dentistry in completely changing the diagnosis, prevention, and treatment of oral illnesses. The strategy makes use of technologies including salivary biomarkers, next-generation sequencing, and genome-wide association studies to facilitate earlier identification, more precise risk assessment, and tailored treatment plans. Bridging oral and systemic health is emphasized as a key strategy to enhance patient quality of life, underscoring the need for ongoing interdisciplinary collaboration in dentistry.

PPM-guided dentistry is a data-driven approach that classifies patients into subgroups that allow tailored treatments and interventions-the success of this approach depends on its ability to be predictive, preventive, personalized and prophylactic. PPM-guided dentistry is thus an innovative concept within the current development of medicine, supported by genomic and OMICS diagnostic techniques. These are diagnostic tools that allow pre-early detection of alterations with a partial or total genetic basis and that give meaning to the clinical manifestations or phenotypes.

Future research and biodesign-driven applications should focus on refining immunotherapy applications, expanding microbiome-targeted treatments, and improving computational modeling for PPM-guided care.

Healthcare is undergoing a transformation, and it is imperative to leverage new technologies to support the advent of PPM. And it is urgently needed to to discover, to develop and to create new (targeted and/or smart/intelligent) drugs. And with the support of nanotechnology, new targeted therapeutic agents and biomaterials, or aid the development of assays for disease biomarkers and identification of potential biomarker-target-ligand (drug) tandems to be used for the targeting, PPM is making phenomenal steps in the future to come. This is the reason for developing global scientific, clinical, social, and educational projects in the area of PPM and design-driven translational medicine to elicit the content of the new trend. The latter would provide a unique platform for dialogue and collaboration among thought leaders and stakeholders in government, academia, industry, foundations, and disease and patient advocacy with an interest in improving the system of healthcare delivery on one hand and drug discovery, development, and translation, on the other one. So, the Grand Change and Challenge to secure our Health and Wellness are rooted not in Medicine, and not even in Science! Just imagine WHERE?! In the upgraded Hi-Tech Culture!

Keywords: Personalized & Precision Medicine, Biomarkers, Targets, Nanoparticles, Nanocarriers, Nanotheranostics, Nanobiomedicine, Nanotechnologies.

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Pediatric Dental Clinic, Brazilin Medical University Centre, Ashkelon, Affiliated to Ben-Gurion University of the Negev, Beer-Sheva, Israel

Biography: Uri Zilberman received his DMD degree in 1983 from the Dental Faculty, Hebrew University, Jerusalem, and his PhD degree in 2000 on basic dental science, especially dental anthropology. Dr. Zilberman has a specialist degree in pediatric dentistry from 1990 and treated children and adolescents for the last 40 years. Prof. Zilberman is the head of the Pediatric Dental Unit at Barzilai Medical University Center, a unit recognized for specialization in pediatric dentistry since 2007. Associated Professor at the Faculty of Health Science, Ben-Gurion University of the Negev, Beer-Sheva, and teaches a course on Pathophysiology of the Oral Cavity for fourth year pharmacology students. Prof. Zilberman published more than 90 research papers and chapters in pediatric dentistry and dental anthropology. His main interests are new dental procedures and devices for pediatric dentistry, hereditary disorders and their effect on tooth development, and the use of biomimetic materials in pediatric dentistry, like Glass-Ionomers Cements. He developed new dental procedures and a patented new dental device for pediatric dentistry.

Single Root Molars (SRM) - Prevalence and its significance in human dental evolution

Background and Aim: Anatomic variation in root morphology of permanent molars that have been reported pertain to the presence of additional roots, canals or fused roots and C-shaped canals. The occurrence of a Single Root in Molars (SRM) is rare.

The aim of the study was to determine the prevalence of single root molar in a large sample of Israeli population and to correlate the crown size of SRM to dental evolution of HSS.

Methods: 2425 panoramic radiographs of modern healthy patients were examined on a light table and the prevalence of SRM was determined. The crown width (MD) of the mandibular second molars of normal two rooted molars, Single Root Molars and homologue two-rooted molars were measured using a digital caliber on a light table.

The results of the crown width were compared to anthropological populations (Early HSS and Neanderthals) and archeological population from excavations in Israel from 5000 BC to 13-19 century AC.

Results: The prevalence of Single Root Molars in the modern population was 6.13%. No significant differences were found between males and females. In the upper jaw Single Root Molars was found in both first and second molars while in the lower jaw only second molars showed SRM. In both the Neanderthal and Early HSS groups 1 case with Single Root Molars was found. No Single Root Molars were found in the archeological groups from Israel excavations (5000 years BC till 19th century AC).

The size of the crown was relatively stable during evolution but during the modern period the MD size of the crown was significantly reduced. The crowns of the molars with single root showed significant reduction in comparison to two-rooted molars and the differences are significant statistically (P value<0.01). The homologue two-rooted second molars showed results between the normal population and single root molars.

Discussion: This is the first analysis of the prevalence of single root molar in a large population of Israel. The results showed that the crown size is decreasing during the modern period and this reduction is increasing in Single Root Molars, implicating that an on-going reduction in tooth size is happening, probably due to reduction of jaw size and the changes in food processing. More than that, single root molars are associated with higher percentages of impacted upper canines (9.9% VS 4% in the general population).

Vincenzo Giorgino

Studio Giorgino SRL, Italy

Biography: Vincenzo Giorgino, DDS is a dentist and a prominent expert in Digital Dentistry and Myofunctional Orthodontics. He serves as an International Speaker for Myofunctional Research Co. (MRC), sharing his expertise globally on the integration of functional protocols and modern technology. As the clinical director of Studio Giorgino in Italy, he focuses on disruptive digital workflows, ranging from intraoral scanning to tele-orthodontics. His work is dedicated to enhancing patient compliance and clinical outcomes through the strategic use of Artificial Intelligence and remote monitoring systems.

The future of patient compliance: Integrating Myofunctional Research (MRC), AI-driven storytelling, and full remote tele-orthodontics for superior outcomes

One of the primary hurdles in Myofunctional therapy is maintaining high patient engagement and adherence over time, especially in pediatric cases. This keynote presentation explores a revolutionary protocol that combines established clinical foundations with cutting-edge digital technologies to bridge the gap between the clinic and the home environment.

We Will Discuss a Disruptive Digital Workflow Featuring:

AI-Driven Engagement: Using Large Language Models (LLMs) like Google Gemini to create personalized, gamified storytelling and educational content, making the therapy journey unique and interactive for children.

Full Remote Tele-Orthodontics: Exploring the possibility of managing treatments entirely via remote monitoring after an initial in-person comprehensive diagnostic visit. This approach minimizes clinical chair time while maximizing professional oversight.

Real-Time Clinical Monitoring: Utilizing Dental Monitoring to track appliance wear and muscle function remotely, allowing for constant feedback and higher accountability without geographical constraints.

Visual Motivation: Leveraging Myofunctional Research (MRC) protocols and digital visualization tools to provide patients and parents with tangible evidence of biological and functional changes.

By blending clinical expertise with AI and tele-orthodontics, practitioners can transform the patient experience, shifting from passive compliance to active engagement, and achieving stable, predictable functional results even in a fully remote setup.

Yançanã Luizy Gruber[1], Nathália Christina Stremel Martins[1], Aline Franciele Ferreira Martins[1], Fernando Eduardo Wielewski[1], Angélica Resnizek Diniz[1], Maurício Zardo[1], Luciana Dorochencko Martins[1], André Takahashi[1], Vitoldo Antonio Kozlowski Junior[1,2*]

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Biography: Prof. Dr. Vitoldo Antonio Kozlowski Junior, Pos Doc, Ph.D., M.Sc., DDS, has completed his Pos Doc in Periodontology, The Forsyth Institute, Harvard University, Boston, USA, and Ph.D., M.Sc. in Dentistry/Pharmacology from the University of Campinas, Brazil. He is an Associate Professor of the Ponta Grossa State University, Brazil, in the Department of Dentistry and ACUBENS Research Laboratory, Biological and Health Sciences Division. Qualification in Pharmacology, Clinical Pharmacology, Periodontology, Clinical Therapeutics, and integrative and complementary practices for oral health in the area of Phytotherapy by the Brazilian Federal Council of Dentistry. He has been practicing dentistry in a private clinic for 40 years and continues to do so to this day. Dr. Vitoldo has published more than 50 papers in reputed journals and has been serving as an editorial board member of repute. He has shown more than 300 times in scientific meetings.

Importance of clinical pharmacokinetics of medications in the postoperative period of patients undergoing dental surgical procedures

Dental surgical procedures induce an inflammatory response and may lead to conditions of postoperative discomfort. Therefore, it is recommended that the dentist prescribe drugs to modulate inflammation, control infection, and relieve pain. The authors focus on the clinical pharmacokinetic parameters of different medications for the short-term management of postoperative clinical conditions in patients undergoing dental surgical procedures. This presentation analyzes the effectiveness of edema control and postoperative pain with the use of drugs administered pre- and post-surgery.

Pharmacokinetic Parameters of Drugs: Distribution volume (Vd), t1/2, peak concentration, time to peak concentration, AUC (Area Under Concentration), and Css (Steady-State Concentration) will be discussed, guiding clinical prescription. The informed consent form explaining the purpose of the research was provided to and completed by the patients. Participants were invited and selected through anamnesis, with the researcher completing a form containing biodemographic data such as age, gender, race, weight, maximum and

minimum blood pressure, surgical procedure, anesthetic used, and medication. Surgeries were performed on both asymptomatic and symptomatic teeth and were classified as simple, compound, and complex. Simple surgery refers to the extraction of one tooth; compound surgery, to the extraction of two teeth; and complex surgery to those requiring osteotomy, odontosection, flap surgery, removal of more than two teeth, or implant surgery. The start and end times of the procedure, the number of anesthetic cartridges used, the volume in mL of anesthetic used, the surgery time, the number of teeth extracted, implant types, the use of a diamond bur for odontosection, and the types of surgery were recorded. To obtain data on pain, we used the Categorical/Colored Scales, and the Visual Analogue Scale (VAS); for edema, we used the interincisal and interauricular distances and their differences. It was verified that not taking medications will cause postoperative discomfort for the patient, and that all the studied drugs exhibit good analgesic action and infection/edema control, concerning the clinical pharmacokinetics of the medications.

Keywords: Antibiotics, Analgesics, Anti-Inflammatory Drugs, Edema, Pain.

Tzivia Elias[1], Summer Rotering[1], Shalva Goldenhersh[3], Zvi Loewy[1,2*]

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Biography: Dr. Zvi Loewy is a senior academic leader and an experienced global pharmaceutical–biotechnology executive. He leverages a diversified background in big-pharma senior management, biotech startup creation and academia. He has served as a board member of the New Jersey Bioscience Center Incubator since 2010. Dr. Loewy's international experience has included leading international research teams, championing the penetration and commercial launch of healthcare products world-wide, and leading open innovation in the Mid-East. He received his PhD in Molecular Biology from the Albert Einstein College of Medicine. Dr. Loewy has over 25 issued patients.

Innovative approaches to impede the pathogens implicated in COPD exacerbation

Innovative medical devices have enhanced health care and improved the overall quality of life. Although providing significant medical benefits, there are unfortunately a myriad of diseases that can be attributed to the presence of medical devices. Microbes can colonize on a medical device surface and cause infections, and at times can even lead to malfunction of the device. Microbial species are present either as planktonic cells or incorporated into biofilms.

While different types of medical devices harbor microbes, dental prostheses are some of the most pervasive. Previously we reported that edentulous patients were at greater risk for Chronic Obstructive Pulmonary Disease (COPD) as compared to dentate individuals. Most of the oral microbes are commensal organisms. Those that are pathogenic microbes can result in oral infections, and at times initiate systemic diseases. COPD is the third leading cause of death world-wide. COPD manifests as an inflammatory condition involving the airways, lung parenchyma and pulmonary vasculature. COPD exacerbation correlates with bacterial colonization of the upper and lower airways.

In this study we focus on: (a) The identification and characterization of a commensal bacteria that elicits a strong anti-*Haemophilus influenzae* response; (b) Defining the mechanism of the anti-*Haemophilus influenzae* response; and (c) The identification of natural compounds that inhibit and eradicate *Pseudomonas aeruginosa* biofilms.

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ORAL PRESENTATIONS

Dr. Afroz Alam Ansari

Professor, Dept. of Paediatric and Preventive Dentistry, K.G. Medical University, Lucknow (UP), India

Emerging trend of intranasal sedation in pediatric dentistry

Intranasal sedation is a minimally invasive drug-delivery technique used in dental practice to reduce anxiety, discomfort, and procedural distress, particularly in pediatric and special-needs patients. Best among submucosal methods. Intranasal administration is a painless, inexpensive and easy to apply method. It is used as an alternative to sedation by oral or injection, especially in pediatric patients. The duration of onset of action in intranasal administration is close to intravenous administration. There are two ways to administer IN medications: By dripping or atomization. This method involves administering sedative or anxiolytic medications through the nasal mucosa, allowing rapid absorption into the systemic circulation via the rich vascular plexus of the nasal cavity. Because it bypasses the gastrointestinal tract and first-pass hepatic metabolism, intranasal sedation offers a faster onset of action and more predictable clinical effects compared to oral administration.

One of the major advantages of intranasal sedation is its simplicity and non-invasiveness. It eliminates the need for intravenous access, which can itself be a source of fear and stress, especially in children and needle-phobic patients. The technique is generally well tolerated, easy to administer, and does not require advanced equipment, making it suitable for outpatient and office-based procedures. Commonly used drugs for intranasal sedation include midazolam, dexmedetomidine, ketamine, and fentanyl, either alone or in combination, depending on the desired depth of sedation and clinical context. Intranasal sedation is particularly valuable for short diagnostic or therapeutic procedures such as dental treatments, imaging studies, and minor surgical interventions. It provides effective anxiolysis, mild to moderate sedation, and in some cases analgesia, while preserving protective airway reflexes. With appropriate patient selection, dosing, and monitoring, intranasal sedation has demonstrated a high safety profile. Intranasal sedation is emerging as an important alternative to traditional sedation techniques in pediatric dental practise nowadays.

Biography

Dr. Afroz Alam Ansari is currently working as professor in Department of Paediatric and Preventive Dentistry at the Faculty of Dental Sciences, King George's Medical University, Lucknow. He completed BDS (1998) and MDS (2002) from KGMC, Lucknow, and has over 23 years of academic, clinical, and research experience. He has served in various prestigious institutions and has guided postgraduate students extensively. His major interests include early detection of caries and behavioural management of child patients in pediatric dental practise. Dr. Ansari is guiding various post students presently in multiple research projects and has over 30 publications in reputed journals with significant contributions to pediatric dental patients' care.

Ali Alhaizaey

King Faisal Medical City, Saudi Arabia

Principles & planning of clear aligners: An integration to streamline treatment and increase predictability

No doubt that clear aligner treatment is one of the fastest growing sectors in the dental industry. This highly demanded treatment by patients makes orthodontists to think broadly and deeply in expanding their knowledge and practice of this relatively new technology. When I started doing clear aligner treatment, I have started by very simple cases that were easy to treat them by conventional appliance. I just do scan of my patient, fill the prescription, review my Clincheck, then approve the treatment. However, the treatment progress was not running as simple as I expected. After treating several numbers of cases by clear aligners, I have realized that the clear aligner planning process encompasses many important aspects that should be followed to streamline treatment. I now treat the very complex cases as if they are simple cases and recommend clear aligner therapy as possible for any of my patients.

In this lecture, I will clarify step by step how the process of planning are carried out to streamline treatment by clear aligners. The lecture will also point to the importance of communication with clear aligner designer and how to properly guide him to the wanted virtual treatment planning.

Objectives:

- Simplifying the process of planning and modifying the clincheck.
- Principles of clear aligners.
- Providing methods and guides to achieve excellent results with clear aligner and reduce number of refinements.
- Unlocking the complexity of communication between doctors and clear aligner designer CAD.
- Guides to Guide! Writing the doctor instructions and how to guide the clear aligner designer CAD to the wanted virtual set up.
- The elements of developing a treatment plan of clear aligners and how the process of integration between the elements is caried out.
- Sharing several complex cases from planning to final results.

Angelina Ivanova*, Valeriia Buzova
SkyLab AG, Superlab Suisse Epalinges SA, Switzerland

Aspartic acid-facilitated calcium ion incorporation: A new approach for enamel remineralization outperforming fluoride efficacy

Enamel erosion represents a widespread clinical concern, as prolonged pH reduction disrupts the natural balance between demineralization and remineralization processes normally maintained by saliva, substantially elevating erosion risk. Current therapeutic approaches focus on hydroxyapatite stabilization or calcium/phosphate ion supplementation to promote remineralization. However, these methods exhibit critical limitations: Poor solubility, insufficient penetration into deeper enamel layers, formation of calculus and complexes leading to reduced bioavailability, and, in the case of fluoride, risk of fluorosis. Such limitations prompt exploration of novel biomimetic approaches. Aspartic acid, a calcium-binding amino acid abundant in enamel matrix proteins during tooth development, presents promising potential as a remineralization enhancer by directing hydroxyapatite crystallization processes.

The aim of the research was to investigate the remineralization potential of aspartic acid alone and in combination with various calcium sources, comparing their efficacy to fluoride as a conventional market benchmark.

Bovine enamel blocks were sectioned from tooth samples of deceased animals for experimental use. Baseline Surface Microhardness (SMHR) measurements of enamel blocks were obtained, followed by demineralization in pH 4,5 solution for 60 minutes and subsequent SMHR reassessment. Enamel blocks (n=10 per treatment group) then underwent 16-hour incubation in solutions with test substances. remineralization efficacy was quantified through percentage recovery of surface microhardness (%SMHR). Three experiments were carried out using aspartic acid alone and in combination with various calcium sources to determine their remineralization efficiency and synergistic effects. In each study, deionized water served as the negative control and 1450 ppm fluoride as the positive control.

In an evaluation of the individual remineralizing efficacy of calcium sources, 1% CaMgZnHAP, 1% Tricalcium Phosphate (TCP), and 1% nanoXim® CarePaste Hydroxyapatite (nano) demonstrated statistically significant remineralization, resulting in a mean %SMHR values

of 27%, 21% and 15%, respectively, however, fluoride exhibited the highest remineralizing effectiveness among the tested products, achieving an average %SMHR of 36%. Individually aspartic acid (Asp) at concentrations of 0,2% and 0,4% caused pronounced demineralization, resulting in mean %SMHR values of -88% and -92% compared to the negative control, deionized water, which achieved a mean %SMHR of -29%. In contrast, a lower concentration of Asp (0,1%) did not exhibit demineralizing effects, instead, a trend toward remineralization was observed, with a mean %SMHR of 3%. Combining aspartic acid with calcium sources markedly enhanced remineralization. The 0,5% aspartic acid+1% dicalcium phosphate dihydrate formulation achieved the greatest SMHR recovery (45%), followed by 0,5% Asp +1% CaMgZnHAP (33%), 0,5% Asp+1% nanoXim® CarePaste Hydroxyapatite (nano) (26%), and 1% Asp+1,5% TCP (23%). All combinations surpassed fluoride's 5%. Notably, increasing the concentration of aspartic acid does not enhance remineralization and a lower (0,1%) concentration of Asp with 0,5% TCP achieved 32% SMHR, surpassing fluoride's 14%. These results highlight the synergistic potential of aspartic acid-calcium formulations, offering a promising alternative to fluoride-based therapies.

Biography

Angelina Ivanova holds a Bachelor's in Biotechnology and an MSc in Medical Chemistry. With extensive experience in biochemistry, cosmetic chemistry, and R&D management, she has led the development of multiple commercial product lines spanning skincare, oral care, hair care, and dietary supplements. She is a member of the Royal Society of Cosmetic Scientists and the American Chemical Society. Angelina Ivanova has authored 3 patents with 12 additional applications filed, implemented 6 technologies in market products, and participated as a speaker and session chair at international conferences.

Dr. Anu Jose

Facio-maxillary Surgeon, Department of Surgery, The University Hospital of West Indies Kingston, Jamaica

Craniofacial fibrous dysplasia: A challenging case

Fibrous dysplasia's are benign tumors where normal bone marrow is replacement by abnormal fibrous connective tissue. They cause esthetic problems particularly when facial skeleton is involved. Usually they are asymptomatic and slow growing. Rarely they cause functional impairements when the growth impinges on vital structures. Recontouring is the treatment of choice. However, to accurately estimate the amount of reduction required is challenging. Stereolithographic models which are 3D printed models based on computed tomography scan have gained popularity in the recent times for management of cranio-facial deformities. Management of craniofacial fibrous dysplasia posses a challenge to surgeon owing to its functional and esthetic implications. Stereolithographic models printed using 3D CT scan can help both in accurate treatment planning as well as aid in creating a surgical stent to maximize outcomes. Accurate recontouring while maintaining esthetic harmony of face as a challenge was easily dealt using this technology. Here we present a rare case of craniofacial fibrous dysplasia managed with the help of stereolithographic models.

Biography

Dr. Anu Jose stands as a preeminent figure in contemporary oral and maxillofacial surgery, distinguished by her groundbreaking contributions to oncological surgery and innovative reconstruction techniques. Currently serving dual leadership roles at prestigious institutions, Dr. Anu Jose practices as a Facio-Maxillary Surgeon at the University Hospital of the West Indies, Kingston, Jamaica, and as an Oral and Maxillofacial Oncologist at FOSA Surgical Associates. These appointments reflect her exceptional clinical capabilities and institutional confidence in her expertise. Her Fellowship in Oral Oncology from the distinguished SGM Cancer Center has equipped her with unparalleled expertise in managing complex head and neck malignancies. Her surgical repertoire encompasses the most sophisticated procedures in oncological surgery, including radical tumor resections, comprehensive neck dissections,

and advanced microvascular reconstruction utilizing free tissue transfer techniques. Dr. Jose's intellectual contributions to the field are substantiated by her impressive portfolio of over 28 peer-reviewed publications in prestigious journals indexed within PubMed and Scopus databases. Her research addresses critical areas of clinical relevance, with particular emphasis on oncological outcomes, reconstructive innovations, and evidence-based surgical protocols. Her scholarly work demonstrates a rare combination of clinical insight and research acumen, consistently addressing real-world challenges while contributing to the theoretical framework underlying contemporary oral and maxillofacial surgery practice. Dr. Jose's expertise has transcended geographical boundaries through her active participation as a distinguished speaker at numerous national and international conferences worldwide. Her presentations consistently showcase innovative surgical techniques, novel research methodologies, and evidence-based approaches to complex clinical scenarios. Her approach to medical practice reflects a deep appreciation for cultural sensitivity and international collaboration—understanding that the pursuit of medical excellence requires both technical mastery and respectful engagement with diverse healthcare traditions. This philosophy of harmonious integration between innovation and respect for established wisdom has positioned her as a valued contributor to global medical discourse.

Dr. Ayushi Manoj Botadra

Goregaon Dental Centre, Mumbai, Maharashtra, India

Tragic to magic

Mucormycosis is a rapidly progressive fungal infection that often requires aggressive surgical intervention, resulting in extensive maxillofacial defects. These defects lead to severe facial disfigurement, impaired mastication, nasal regurgitation, speech difficulties, and profound psychological trauma. This case report presents the rehabilitation of a mucormycosis survivor using a combined orbital prosthesis and hollow bulb obturator, showcasing the transformative potential of maxillofacial prosthodontics—from tragic to magic.

The patient reported with a complete loss of the left orbit along with a maxillectomy defect, creating significant esthetic and functional challenges. A multidisciplinary evaluation guided the design of prosthetic solutions aimed at restoring facial symmetry, oral function, and emotional well-being. A lifelike silicone orbital prosthesis was fabricated to replicate natural skin color, texture, and anatomical details. Enhanced retention was achieved using anatomical undercuts, adhesives, and spectacle support. The prosthesis restored facial form, improved eye symmetry, and significantly boosted self-confidence.

Parallelly, a hollow bulb obturator was constructed to seal the maxillary defect. The hollow design minimized weight while improving speech clarity, reducing nasal leakage, and enhancing masticatory efficiency. Proper border extension and occlusal balance ensured comfort and stability. Post-rehabilitation follow-up revealed marked improvements in esthetics, function, nutrition, and overall quality of life. The combined intraoral and extraoral prostheses successfully reinstated normalcy for the patient after a devastating illness. This case underscores the vital role of maxillofacial prosthodontics in restoring not just anatomy, but identity and confidence in post-mucormycosis patients.

Biography

Dr. Ayushi Botadra is a committed Maxillofacial Prosthodontist with a strong academic and clinical foundation. She completed her undergraduate dental education at YMT Dental College, Mumbai, followed by a postgraduate specialization in Maxillofacial Prosthodontics from Bharati Vidyapeeth (Deemed to be) Dental College and Hospital. Throughout her academic journey, she has consistently demonstrated excellence, having received accolades for paper presentations at both state and national conferences and contributing to multiple scientific publications. Driven by a passion for innovation in maxillofacial rehabilitation, Dr. Ayushi has focused her current clinical interest on the role of Maxillofacial Prostheses. Dedicated to patient-centered care, Dr. Botadra believes to restore not just anatomical structure, but also the confidence and quality of life of her patients. She continues to contribute actively to the field through research, clinical practice, and academic engagement.

Balkis Khadhraoui[1,3*], Zeineb Riahi[1,3], Zohra Nouira[2,3], Dalenda Hadyaoui[2,3], Jilani Saafi[2,3]

[1]Assistant Professor, Department of Fixed Prosthodontics, Faculty of Dental Medicine, University of Monastir, Monastir, Tunisia

[2]Professor, Department of Fixed Prosthodontics, Dental Faculty of Monastir, University of Monastir, Tunisia

[3]Research Laboratory of Occlusodontics and Ceramic Prosthesis LR16ES15, Tunisia

Ceramic veneers versus the injection-moulding technique for anterior diastema closure: A comparative overview

The management of anterior diastemas remains a common aesthetic challenge in contemporary restorative dentistry. This presentation provides a comparative overview of two widely used treatment modalities: Ceramic veneers and the injection-moulding composite technique. Ceramic veneers offer superior long-term color stability, high esthetic predictability, and excellent mechanical properties, making them a reliable solution for patients seeking durable and minimally invasive cosmetic enhancement.

In contrast, the injection-molding technique based on highly filled flowable composites applied through a silicone index has emerged as a cost-effective, conservative alternative that enables efficient chairside diastema closure with precise morphological control.

The talk examines indications, clinical protocols, esthetic outcomes, longevity, and patient-centered factors for each approach. Advantages and limitations are discussed in terms of preservation of tooth structure, reversibility, treatment time, and maintenance needs. By analyzing the strengths of both techniques, the presentation aims to guide clinicians in selecting the most appropriate option for individualized, predictable treatment of anterior diastemas.

Biography

Dr. Balkis Khadhraoui studied Dental Medicine at the Faculty of Dental Medicine of Monastir, University of Monastir, Tunisia and graduated in 2017. She completed 4 years of residency in fixed prosthodontics at the Faculty of dental Medicine of Monastir. Dr. Balkis defended her doctoral thesis in dental medicine in 2022 and obtained her specialization diploma in prosthodontics in 2023. Currently, she is an assistant Professor in prosthodontics at the Faculty of Dental Medicine in Monastir. She is member of the Research Laboratory of Occlusodontics and Ceramic Prosthesis LR16ES15 of the University of Monastir since 2019.

Dr. Bharat Joshi Reader

Department of Periodontology, MMCDSR (Deemed to be University) Mullana Ambala Haryana, India

Management of peripheral giant cell granuloma in a medically compromised patient - A case report

Oral cavity encounters a number of clinical growths which are usually asymptomatic and painless in nature. Majority of lesions are limited to the local site only and are easily managed by complete excision. However, some are aggressive in nature and invades the surrounding structures also. A typical example of such lesions is peripheral giant cell granuloma which is characterized by reactive response which is limited to periosteum, periodontal ligament and gingiva. It usually does not involve the bone but can cause esthetic deformities. It is often associated with poor oral hygiene, ill-fitting denture or trauma. There is predilection for females and occurrence can be at any age. Commonest location of site is edentulous ridge which may be associated with tooth extraction and etiopathogenesis is assumed to be due to osteoclasts that remain as remnants in the original site. Diagnosis is dependent upon both clinical evaluation and radiographic interpretation. However, final confirmation is to done by histo-pathological examination. Management involves surgical excision completely to avoid further reoccurrence which is nearly about 10%. But presence of any medical condition can create complications during the treatment of this entity. The aim of this presentation is to present management of medically compromised patient with peripheral Giant cell granuloma. The lesion healed without any complication.

Biography

Dr. Bharat Joshi holds Master's degree in Periodontology & Oral Implantology and has been recently working as Reader in MMCDSR, Haryana, India. He has experience of 4.5 years teaching to BDS, MDS and Dental Hygienist Students. Dr. Bharat has published his articles in various National & International Journal Publications (23 Publications). Currently, he is an Editor in Clinical and Medical research journal (Athena Publications), Journal of Communication and Health (JCIH) and with Archives of dental research & Journal of Dental

Health & Oral Research. He is former assistant editor with Indian journal of case reports (100 articles contributed as both reviewer and assistant editor) and Assistant editor in Acta Scientifica Dental Science-(2 articles edited & 4 short opinions published) & Ecoronica dental sciences UK (2 short opinions published). In addition to it, he has 6 publications of patient interest in iclinic.com. As a young dentist, he believes that by gaining experience in both academic and clinical dentistry, there are greater chances of developing good skills & above all, being exposed to diverse and different approaches to diagnostic equipment's, there are chances of satisfactory treatment for the patients. He has attended several national and international scientific conferences (recently 10th International dental conference in Italy, 2025 as an eminent speaker), presented his research work as a subject matter expert & has been awarded with best paper. Dr Bharat Joshi's research Interest includes Implant Dentistry, Soft tissue grafts, Ridge augmentation and endo-perio lesions. In addition, he has knowledge of clinical research in the medical field also.

Bhavana Sujanamulk

Dept. of Oral Maxillofacial surgery and Diagnostic Sciences, Division of Oral Medicine and Radiology Faculty of dentistry, Najran university, Kingdom of Saudi Arabia

Introducing Artificial Intelligence (AI) software in the diagnosis of dental diseases based on dental radiology

The future of dental diagnostics has been shaped using continuous advancements in artificial intelligence. Using these technologies, the impact on the clinical practice has been expanded significantly. We introduce the dental AI software based on deep machine learning model which can analyse the dental radiographs based on steps like image input, automated analysis, detection of abnormalities like caries, periodontal bone loss, impactions etc: In OPG and RVG and detection of abnormalities based on the colour images. The development of our AI software with whom we collaborated started with training of annotations on normal anatomical landmarks followed by annotation of pathologies on RVG and OPG. The better diagnostic AI software works on WEB UI/API–application programming interface and prediction of oral diseases using AI computer vision algorithms. The trial of our software had 94.8% accuracy as used by various dentists in their clinical practice. Our diagnostic software which has FDA cleared analysis in real time, helps to transform the powerful diagnostic tool which supports the evidence-based decision and management care of patients. The key features of our software include minimal technical support with continuous workflow, friendly interface, student learning models, also provides transparency to patients for their own understanding. In future we plan an integrated AI model based on clinical and radiological features in the field of OMF radiology, which would be the most promising areas for the further development of dentistry.

Biography

Dr. Bhavana Sujanamulk is working as Assistant professor in the department of Oral diagnostic sciences, division of Oral Medicine and Radiology at faculty of dentistry; Najran university, Kingdom of Saudi Arabia. She has teaching experience of 12 yrs. To her credit she has won several awards for the best scientific research paper in faculty category. Dr. Bhavana authored over 40 publications in various international and national esteemed journals. Recently she

has focused her career on AI in radiological diagnosis of dental diseases. She has collaboration with AI software company, Better diagnostics; Connecticut USA; with whom she is working for the past 4 yrs for bringing up the AI Powered Radiographic analysis in dentistry.

Dr. Durgadevi Boopathi

Assistant Professor, Department or Oral Medicine and Maxillofacial Radiology, Mahatma Gandhi Postgraduate Institute of Dental Sciences and Hospital, Pondicherry, Puducherry UT, India

Virtual visions: Augmented reality's (AR) future impact on the dental world

Among the most revolutionary changes in the field of technology and medicine, augmented reality is phenomenal. AR is defined as a live direct or indirect view of a physical environment whose elements are augmented by the fusion of computer-generated and real-time images. The complexity and need for precision in head and neck imaging demands next level approach for surgical treatment planning. Augmented reality can provide data beyond current advanced CT, MR imaging techniques. The working of AR in head and neck region consists of capturing the patient in 2D and 3D and reconstruction databases. With Hololens camera, depth sensor and self-localization achieved through monitor. The resultant image projected through optimal see through head mounted display (OST-HMD). The application runs through 50-60-frames/sec.

AR has been applied in clinical scenario such as shape, extend, spatial location of the tumor, with respect to bone, vital structures in surgical planning, providing immediate information about shape and extent of the pathology by looking at planar size at multiple orientations. AR can be used in mock surgeries using model, prior to orthognathic surgery. AR has been used for training the future dentists conceptualize complex anatomy of head and neck inner ear, maxillary sinus-teeth anatomy, nasal anatomy, etc. AR has been successfully used in head and neck imaging and surgical planning, among esteemed universities in the World-University of Alabama in February 2023. This review presentation will include case scenarios, where augmented reality has been used successfully and its potential future applications. This reviews the impact and most recent pathways for dentistry since an augmented reality program-Medivis is the First to Receive FDA Clearance for Augmented Reality Navigation in Neurosurgery as of December 2025.

Biography

Dr. Durgadevi Boopathi an enthusiastic Oral physician and Maxillofacial Radiologist, graduated BDS from Mahe Institute of Dental sciences, Mahe, Pondicherry, India. Has been a Gold medallist for all the 5 years and was awarded “The best outgoing student of the batch” in my BDS graduation held in 2017. He was joined Oral Medicine and Radiology in Mahatma Gandhi Postgraduate Institute of Dental Sciences, (Government dental college) immediately after BDS. With great values and patient care, he enjoyed his MDS and also sought through research and published papers. He is currently Assistant Professor in Mahatma Gandhi Postgraduate Institute of Dental Sciences, (Government dental college). Dr. Boopathi completed lecture series “Case Studies in Orofacial Pain and Headache” and “Interprofessional headache and Orofacial pain rounds” being conducted by American Dental Association, Harvard University and Tufts University, School of Dental Medicine. With the realization in the past 4 years of career that there is lot more to learn and update in maxillofacial radiology and Oral medicine, he is currently working under fractal analysis radiological studies and onto the usage of AI for precision and perfection in Dentistry, for treatment efficiency rather for diagnosis.

Eduardo Rubio

University of Buenos Aires, Argentina

The role of the TMJ in long-term stability after orthognathic surgery

Temporomandibular Joints (TMJ) are essential for achieving long-term stability following orthognathic surgery. Mandibular position is closely related to TMJ function, and any error during surgery can lead to unpredictable outcomes.

Another important consideration is the role of TMJ function and orthognathic treatment in young adult patients. In some cases, surgery should be postponed, while in others, early surgical intervention is crucial to address underlying issues effectively.

During the conference, we will address these aspects, with a particular focus on young patients and the timing of orthognathic surgery.

Biography

Dr. Eduardo Rubio is Graduated from the University of Buenos Aires in 1980. He did his PhD in the same University in 1983. Residency at the French Hospital Buenos Aires, Argentina. Oral and Maxillofacial Surgeon (Argentinian Oral and Maxillofacial Society in 1983) Staff of the French Hospital till 2001 Master in Health Care Administration in 2001 (University of Entrepreneur and Social Sciences). Dr Rubio is Professor at the University of Buenos Aires in 2008. Nowadays, Head of the Postgraduate Program in Oral and Maxillofacial Surgery at the Argentinian Catholic University and Adjunct Professor Oral and Maxillofacial Surgery III at University of Buenos Aires. He is an Associated professor in Oral and Maxillofacial Surgery III and IV at Argentinian Catholic University. Work at Private office with a staff of doctors devoted to OMFS. Dr Rubio is dedicates mostly to Orthognathic Surgery.

Dr. Gajanan Gangadhar Chate

Goregaon Dental Centre, Mumbai, Maharashtra, India

Beyond the drill: The paradigm shift to Non-Restorative Caries (NRC) management

Dental caries has traditionally been managed through a surgical "drill and fill" approach. However, modern cariology defines caries not merely as a localized lesion, but as a dynamic, behavioural, and biofilm-mediated disease. This understanding mandates a critical shift from surgical intervention to a "Medical Model" of care, focusing on managing the disease process rather than just the resultant symptom. This presentation evaluates the efficacy and clinical protocols of Non-Restorative Cavity Control (NRCC) techniques, aiming to preserve natural tooth structure and arrest lesion progression without surgical excavation. Key methods analysed include Silver Diamine Fluoride (SDF), Resin Infiltration, and advanced remineralisation therapies. The discussion will cover the critical diagnostic criteria for differentiating active versus arrested lesions (using ICDAS), the dual mechanism of action of SDF in antimicrobial activity and remineralisation, and the application of Resin Infiltration for micro-invasive management of esthetically challenging initial enamel lesions (white spots). Furthermore, the biochemical foundations of repair, focusing on Fluorapatite formation and new peptide-based therapies, will be explored. In conclusion, NRCC techniques offer a proven, minimally invasive, and highly effective alternative to traditional restoration, improving patient outcomes, reducing dental anxiety, and fostering a truly preventative approach to long-term oral health.

Biography

Dr. Gajanan Gangadhar Chate is committed Associate Dentist with strong academic and clinical foundations. He completed his undergraduate dental education at SDD College and hospital, Parbhani followed by a clinical assistantship in Government dental college, Mumbai. Dr. Gajanan Chate has focused his current clinical interest on the role of Non restorative caries Management, aiming to improve patient outcomes in both function and aesthetics. Dedicated to patient-centered care. Dr. Gajanan Chate believes in blending technology with

empathy to restore not just anatomical structure, but also the confidence and quality of life of his patients. He continues to contribute actively to the field through research, clinical practice, and academic engagement.

Dr. Gulnar Dara Sethna

Associate Professor (Academic), Dept of Periodontology,
Government Dental college & Hospital, Mumbai, India

Recontouring reality: The art of functional & aesthetic crown lengthening

Functional and aesthetic crown lengthening allows clinicians to reshape gingival and osseous contours to meet restorative and smile-related needs. This presentation outlines a streamlined approach to evaluating biologic width, tissue proportions, and case-specific demands to guide sound clinical decisions. Through thoughtful recontouring and preservation of periodontal health, crown lengthening can reliably improve access, enhance esthetics, and support durable restorative outcomes.

Biography

Dr. Gulnar Sethna is an alumnus of the prestigious Government Dental College Mumbai, which she joined in 1989. Following her BDS, she went on to do her MDS in Periodontology from KCDS, Bangalore and trained in Implantology from SDM, Dharwad. With a vast experience of more than 25 years of dental practice behind her, Dr. Gulnar has had a decade long stint in the Indian Army & has served in various corners of the country. Currently appointed as faculty in her alma mater, GDC, Mumbai; Dr. Gulnar has several publications in national & international journals. Her areas of special interest include periodontal plastic surgery, aesthetic dentistry & dental implants.

Dr. Henri Diederich
Cortically Fixed Academy, UK

The rehabilitation of the compromised maxilla using the Bone Truss Bridge approach (BTB)

Introduction: Rehabilitation of the severely compromised maxilla remains a significant clinical challenge, particularly in patients presenting with advanced atrophy, pneumatized sinuses, and limited residual bone volume. The Bone Truss Bridge (BTB) approach has emerged as a minimally invasive, graft less alternative that exploits multiple cortical anchorage sites to create a stable, biomechanically efficient foundation for full-arch rehabilitation. Inspired by bowstring truss engineering principles, this concept combines strategically distributed, long, thin implants engaging dense cortices in the pterygoid, pyriform/nasal floor, and anterior maxilla to generate a three-dimensional "truss-like" support for an immediately loaded, screw-retained prosthesis.

This abstract describes the clinical and prosthetic workflow for BTB-based rehabilitation of the compromised maxilla and highlights its main indications, advantages, and limitations. Following prosthetically driven planning and three-dimensional imaging, implants are placed using a flap or limited flap approach, aiming for high primary stability in atrophic posterior and anterior segments while avoiding sinus grafting, extensive ridge augmentation, or zygomatic implants. A milled metal framework with angulated screw channels is then fabricated to splint the implants, optimize load distribution, and allow retrievability in case of biological or mechanical complications. Reported benefits include reduced surgical morbidity, shorter treatment times, decreased need for ancillary grafting procedures, and high patient satisfaction with function and aesthetics.

Biography

Dr. Henri Diederich is a Luxemburgish dental surgeon and implantologist who has run his own clinic in Luxembourg since 1985. He holds degrees from the Free University of Brussels, Belgium and Paris René Descartes, France, as well as diplomas in legal dentistry and personal injury from Montpellier, France. A sworn expert at the Luxemburgish Court of Justice, he is the inventor of the CF@O protocol and Hybrid Plates, founder and president of the Implantoral Club Luxembourg and Open Dental Community, and Honorary Consul of Latvia. Dr. Diederich is an international lecturer, author, and former FIFA football referee.

Dr. Kanika Gupta Verma

Professor, Department of Pediatric and Preventive Dentistry, Teerthankar Mahaveer University, Moradabad, Uttar Pradesh, India

Riga–Fede disease with polydactyly: Diagnosis & management

The hallmark of Riga-Fede disease is a reactive traumatic lesion on the tongue's ventral surface, which manifests in early infancy. It happens as a result of the tongue raking over the newly erupted primary, neonatal, or natal mandibular incisors. Growth retardation and nutritional deficits result from the lesion's discomfort during feeding practices. A conservative approach or extraction that encourages healing is part of the management. Although there have been some case reports in the literature, polydactyly and Riga-Fede illness are rarely linked. Pediatric dentists place a high priority on natal and neonatal teeth because of the potential for several issues. In order to preserve the shape and functionality of a child's primary dentition, Riga-Fede disease must be managed. This case report describes the relationship between polydactyly and Riga-Fede disease in a male kid who was 2.5 months old, as well as the treatment strategy for the condition.

Biography

Dr. Kanika Gupta Verma received her Bachelor's in Dentistry from Govt Dental College & Hospital, Amritsar, Punjab in 2005; and Masters in Paediatric & Preventive Dentistry from Guru Nanak Dev Dental College, Sunam, Punjab in 2009. She is fellow in Scientific writing and Clinical trials. She has been working as an active academician since 15 years, with a keen interest in aesthetic and surgical management of children and adolescents. Dr. Kanika Gupta is teaching both graduates and post graduates in the field of child oral health care. She is presently working as Professor in Deptt of Paediatric & Preventive Dentistry, Teerthankar Mahaveer Dental College and Research Centre, Moradabad. She is also a life member of Indian Society of Paediatric & Preventive Dentistry; Indian Dental Association and Indo-Pacific Academy of Forensic Odontology. Dr. Kanika Gupta has around 69 national and international publications on her name. She is author and contributor to various books and also, delivered various lectures in National and International Conferences. Dr. Kanika Gupta is reviewer and editorial board member of various national and international journals.

Karina Dobreva[1*], Iliyana Atanasova[2]

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Artificial Intelligence (AI) as a decision-support tool for orthodontic diagnosis, treatment planning, and tooth movement

Background: Artificial Intelligence (AI) has emerged as a transformative adjunct in contemporary orthodontics, with rapidly expanding applications in automated diagnosis, image-based analysis, treatment planning, growth assessment, and predictive modelling of orthodontic biomechanics. Conventional orthodontic workflows, although clinically effective, are limited by operator-dependent variability, time-intensive analyses, and challenges in anticipating individual biological responses to orthodontic forces. Recent advances in machine learning and deep learning have enabled AI-based systems to process complex orthodontic datasets with increasing accuracy, consistency, and efficiency. The clinical value of these technologies depends on their integration into a clinician-led, biologically driven decision-making framework.

Aim: This study aims to synthesize contemporary peer-reviewed evidence on AI applications in orthodontic diagnosis, treatment planning, growth evaluation, and outcome prediction, with a particular focus on clinical validity, biomechanical relevance, and decision-support functionality.

Materials and Methods: A comprehensive literature review was conducted using the PubMed, Scopus, and Web of Science databases, focusing on systematic and scoping reviews published between 2020 and 2025. Based on predefined inclusion criteria, a total of 20 peer-reviewed publications were analysed, addressing AI applications in cephalometric and image-based diagnostics, AI-assisted treatment-planning algorithms, skeletal maturity and growth prediction, and predictive models of orthodontic tooth movement and treatment outcomes.

Results: Automated cephalometric landmark detection remains the most extensively investigated application of artificial intelligence in orthodontics. Deep learning–based models have consistently demonstrated high diagnostic accuracy, reduced operator-dependent variability, and significant time efficiency compared with conventional manual tracing techniques. Beyond diagnostic automation, AI-supported decision systems have enabled more precise classification of malocclusion patterns, skeletal maturity stages, and craniofacial growth trajectories, supporting individualized timing of orthodontic and orthopaedic interventions.

The emerging evidence further indicates that AI-driven algorithms contribute to orthodontic treatment planning by simulating tooth movement, optimizing aligner-based therapeutic strategies, and estimating treatment duration. By integrating patient-specific anatomical, morphological, and biomechanical parameters, these models enhance treatment predictability under controlled conditions. The AI-enhanced monitoring platforms parallel facilitate continuous assessment of treatment progression, allowing earlier identification of deviations from planned biomechanics and supporting improved patient adherence.

Despite these encouraging developments, substantial heterogeneity persists across study designs, datasets, and validation methodologies. Key limitations include insufficient data standardization, restricted external validation, and incomplete modelling of individual biological variability, particularly with respect to periodontal ligament response and alveolar bone remodelling, which continue to limit widespread clinical implementation.

Conclusions: The current evidence supports the use of artificial intelligence as a valuable decision-support tool in orthodontics, offering measurable benefits in diagnostic accuracy, treatment planning consistency, and biomechanical predictability. AI systems are intended to augment, rather than replace, clinical expertise. Future research should prioritize high-quality multicentre datasets, transparent and interpretable modelling, and rigorous clinical validation to ensure the responsible integration of AI into personalized and predictable orthodontic care.

Keywords: Artificial Intelligence, Orthodontics, Decision Support Systems, Clinical, Diagnostic Imaging, Orthodontic Tooth Movement.

Biography

Karina Dobreva studies dentistry at the FDM, MU–Varna, Bulgaria, with a focused interest in orthodontics and dentofacial orthopaedics. Recipient of: National orthodontic award “Prof. Mutafchiev”-2025; Municipality of Varna Annual Name Award in Dentistry-2025. Active participant in international scientific sessions: 35th IMAB Assembly & 15th SEEC, 2025: "Young Scientist Award"; 18th SDM, 2025; 12th ICDO, 2025 (London); 76th EDSA Meeting, 2025 (Dublin); 29th BaSS Congress, 2025 (Belgrade); BSYSB, 2025, 2024: "Session Winner"-2024. President of ADMS–Varna and principal organizer of the SDF “STUDENT VARNA”, 2025, 2024. He certified >100 orthodontic courses, actively involved in clinical practice and scientific publications under the supervision of specialists. Memberships: Student Council, EDSA, Alexander Study Club.

Kerryn Burgoyne

KTalk, Australia

Autism dental care how different individuals are impacted

My abstract is about autistic adults and individuals going to the dentist. I provide an introduction of myself as a self-employed business owner, following by addressing in my presentation the challenges of anxiety/gag reflex, and patient comfort during treatment in the dentist chair. Then I'll be providing strategies for finding appropriate care and creating an environment that reduces patient stress.

And then my presentation finishes with my story with dentists then & now and what I have to do to get my own dental work done in a hospital as an overnight stay and sharing strategies for special needs patients such as autism/ADHD Individuals.

Biography

Kerryn Burgoyne was diagnosed with Asperger's Syndrome at the age of 30, at a time when far less was understood about what is now known as autism spectrum disorder. Prior to this diagnosis, life presented significant challenges, particularly in gaining and maintaining meaningful employment. She often felt judged as an outsider, navigating workplaces that lacked understanding and inclusion. In 2007, motivated by her lived experience and a strong desire to create change, she founded her own business, KTalk. This journey began with the publication of her first self-help life course book, The Goal. Since then, she has authored five additional life course materials designed to support individuals with mental health challenges while also helping employers better understand and support neurodiverse people in the workplace. Kerryn is an internationally recognised autism speaker, delivering keynote and plenary presentations at major conferences around the world and also the proud author of six self-help life course products through KTalk, combining personal insight with practical guidance. Through her work, she continues to advocate globally for greater awareness, inclusion, and understanding of autism and mental health.

Kristie Kapp

EBITDent.co, United States

How A.I. has helped stop the dental burnout epidemic

Burnout in dentistry isn't about patient care—it's about overloaded systems. This session explores how practical A.I. and automation tools are helping practices reclaim time, reduce stress, and improve performance. Learn the difference between real A.I. and automation, where each delivers the greatest impact, and how smarter systems in documentation, diagnostics, intake, insurance, marketing, and accounting are restoring capacity and confidence to dental teams.

Biography

Kristie Kapp brings three decades of dental experience, including CEO of a multi-location group practice, Kristie Kapp, RDH, coaches dental teams in the systems and strategies to increase production while enhancing patient care, unifying team members, and reducing everyone's stress. She emphasizes on increasing doctor and hygiene production, soft tissue management, team motivation/bonus models, team meetings, and AI technology, participants will see the path and develop a plan for generating a thriving business through practice metrics and systems.

Kun Zhang

Sechenov First Moscow State Medical University, Moscow, Russia

A digital workflow integrating intraoral and facial scanning for 3D monitoring of dentofacial changes in class II malocclusion

The pursuit of optimal orthodontic outcomes extends beyond achieving functional occlusion to encompass the enhancement of facial aesthetics, a core concern for patients. Conventional assessment methods, reliant on two-dimensional photography, lateral cephalograms, and clinical evaluation, frequently fall short in their ability to visualize and, more importantly, precisely quantify the dynamic three-dimensional relationship between tooth movement and the resulting soft-tissue adaptations. This limitation poses a challenge in treatment planning, monitoring, and patient communication. The emergence of digital technologies, particularly the integration of Intraoral Scanners (IOS) and Three-Dimensional Facial Scanners (3DFS), offers a transformative solution. This case report details the clinical application and outcomes of a novel, integrated digital workflow designed to monitor dentofacial changes comprehensively in a patient presenting with a Class II division 1 malocclusion.

A single patient undergoing treatment with the Smartee clear aligners system, supplemented by a Transpalatal Arch for enhanced anchorage and torque control, was enrolled. Digital records were acquired at two time points: Pre-Treatment (T0) and after six months of active treatment (T1). The scanning protocol was meticulously standardized. Facial scans were captured using the MetiSmile structured-light scanner with the patient in a natural head position. To encapsulate a range of soft-tissue states, three distinct facial expressions were recorded sequentially: A resting pose with lips in gentle contact, a posed natural smile, and a retracted pose using cheek retractors to fully expose the dentition. Immediately following, a complete arch intraoral scan was obtained using the Medit T100 scanner to ensure consistency in jaw position.

The core of the workflow lay in the fusion and analysis of these multi-source data sets. Initial co-registration of the three facial scans with the intraoral scan was performed using

proprietary AI-based software. These pre-aligned files were then imported into Consulface software, where automated facial landmark detection and anatomical plane alignment functions were employed to register the 3D facial models from T0 and T1. For final, high-precision superimposition, the data was exported to Geomagic Wrap 2021. The models were aligned based on stable, untreated cranial regions—specifically the forehead and nasion—ensuring that observed changes were attributable to treatment effects rather than registration artifact.

A comprehensive deviation analysis was conducted, generating a color-coded 3D heat map that provided an intuitive visual comparison between T0 and T1 states. Quantitative assessments were performed using defined parameters. Sagittal profile analysis evaluated the relationship of the lips to the Esthetic line (E-line) and the position of soft-tissue pogonion. Transverse analysis compared changes in maxillary arch width to corresponding changes in facial soft-tissue width. Results after six months demonstrated measurable improvements: Upper and lower lip prominence to the E-line decreased by 1.16mm and 1.52mm, respectively, indicating a favorable profile retraction. The maxillary arch width increased by 1.67mm, which correlated with a 3.57mm increase in facial width at the level of the maxillary arches, illustrating the direct impact of skeletal expansion on the overlying soft-tissue envelope. Overbite was reduced from 3.3mm to 2.2mm.

In conclusion, this report successfully demonstrates a feasible and precise digital monitoring workflow that synergizes intraoral and facial scanning. The protocol moves beyond traditional 2D assessment by providing an integrated 3D environment where hard- and soft-tissue changes can be visualized simultaneously and quantified objectively. This enhances clinical decision-making, allows for mid-treatment progress evaluation with unprecedented detail, and serves as a powerful tool for patient education and communication. The workflow establishes a reproducible framework for 3D orthodontic documentation and shows significant promise for broader clinical and research applications, warranting further validation with larger cohort studies.

Biography

Kun Zhang is a Ph.D. student in Orthodontics at Sechenov First Moscow State Medical University, where he previously completed his residency and specialist degree. His clinical expertise spans fixed appliances, clear aligner systems, and digital workflows integrating CBCT, intraoral scanning, and facial imaging. He is actively involved in research focusing on 3D data fusion, finite element analysis, and digital treatment monitoring. Committed to evidence-based practice, Kun regularly participates in international conferences and contributes to advancing interdisciplinary approaches in modern orthodontics.

Lata Goyal

Associate Professor, Periodontology Division, All India Institute of Medical Sciences, Bathinda, India

Clinical management of gingival recession associated with Non-Carious Cervical Lesions (NCCL)

Gingival recession is an apical shift of the gingival margin with exposure of the root surface. In the majority of cases of gingival recession with cervical wear, there is no signs of the cementoenamel junction. Despite the involvement, restorations are selected as monotherapy to treat the underlying condition. The successful treatment of these combined defects demands perioplastic surgical procedures along with restoration. Perioplastic procedures may involve coronally positioned/tunnelling flaps with soft tissue substitute to cover the denuded root surfaces. To obtain functional and esthetic outcome, perioplastic procedures may be combined with partial or complete restoration of the non-carious cervical lesion, depending on the predictable line of root coverage and depth of the defect. Root coverage depends upon the amount of soft tissue and hard tissue, biotype, and extent of NCCL on the root surface. Several protocols have been demonstrated, but there is no consensus regarding the superiority of one procedure over another. This presentation will summarize the decision-making steps and current evidence of treatment of these combined defects in terms of clinical and patient-centred outcomes.

Biography

Dr. Lata Goyal is presently working as Associate Professor and is in charge of the Periodontology Division at All India Institute of Medical Sciences, Bathinda. And graduated from Government Dental College and Hospital, Patiala, with 15 medals and an IDA scholarship. She has completed her MDS from Aligarh Muslim University and earned Gold medal in Periodontics. Dr. Goyal completed her senior residency AIIMS, Rishikesh. Has been awarded Diplomate Implantology by WCOI, Associate Fellowship by WCLI USA, Fellow Pierre Fauchard Academy (FPFA). She has a keen interest in perio plastic procedures and Research Methodology. Dr. Goyal was awarded a prestigious KVPY scholarship and fellowship from ICMR New Delhi, and a Research Associateship from the Council of Scientific and Industrial

Research (CSIR), New Delhi. She has more than 30 awards to her credit and also, more than 60 publications, including books and chapters in various national and international indexed journals. Dr. Goyal is an editorial board member and reviewer of more than 15 indexed journals.

Lata Goyal

Associate Professor, Periodontology Division, All India Institute of Medical Sciences, Bathinda, India

Platelet concentrates in the management of combined endo perio lesion

Management of combined endodontic periodontal lesions is one of the most challenging tasks. The prognosis of complex conditions involving both endodontic and periodontic components is guarded, but the success rates can be improved by definite diagnosis and meticulous treatment planning. There is a dearth of literature regarding the use of platelet-rich derivatives in the management of both endo perio lesions. Hereby presenting different clinical scenarios involving both endodontic and periodontic lesions. Along with regenerative therapy, platelet-rich fibrin, platelet-rich plasma and platelet-rich fibrin matrix have been used. All the cases showed significant improvement radiographically and clinically. There was a gain in clinical attachment, reduced probing depth and radiographic bone fill. Autologous platelet-rich derivatives can be used in combination with alloplastic bone substitute for the management of perio-endo lesions. The use of platelet rich derivates enable the clinicians to benefit from the full regenerative capacity of this material. Further randomised controlled trials will better determine whether the addition of platelet-rich derivative alone or in combination will enhance bone formation significantly or not.

Biography

Dr. Lata Goyal is presently working as Associate Professor and is in charge of the Periodontology Division at All India Institute of Medical Sciences, Bathinda. And graduated from Government Dental College and Hospital, Patiala, with 15 medals and an IDA scholarship. She has completed her MDS from Aligarh Muslim University and earned Gold medal in Periodontics. Dr. Goyal completed her senior residency AIIMS, Rishikesh. Has been awarded Diplomate Implantology by WCOI, Associate Fellowship by WCLI USA, Fellow Pierre Fauchard Academy (FPFA). She has a keen interest in perio plastic procedures and Research Methodology. Dr. Goyal was awarded a prestigious KVPY scholarship and fellowship from ICMR New Delhi, and a Research Associateship from the Council of Scientific and Industrial 79 Research (CSIR), New Delhi. She has more than 30 awards to her credit

and also, more than 60 publications, including books and chapters in various national and international indexed journals. Dr. Goyal is an editorial board member and reviewer of more than 15 indexed journals.

Dr. Monika Sunil Jadhav

Goregaon Dental Centre, Mumbai, Maharashtra, India

Patient-centered prosthetic rehabilitation: Redefining standards in maxillofacial prosthodontics

Patient-centered care in maxillofacial prosthodontics represents a vital and evolving approach that emphasizes individualized treatment planning to optimize both functional and aesthetic outcomes for patients with facial disfigurement resulting from congenital anomalies, trauma, or disease. This philosophy prioritizes a comprehensive understanding of each patient's unique anatomical, functional, and psychosocial needs, ensuring that prosthetic rehabilitation extends beyond physical reconstruction to support emotional well- being and overall quality of life. Advancements in digital technologies—including 3D facial scanning, CAD/CAM systems, and high-precision digital impressions—have transformed the landscape of maxillofacial prosthetics. These innovations enable the fabrication of highly customized prostheses that closely replicate natural facial form, texture, and color, enhancing comfort, accuracy, and predictability. Additionally, digital workflows facilitate improved efficiency, reduced chairside time, and more cost-effective rehabilitation, resulting in higher patient satisfaction and better clinical outcomes.

Despite these advancements, challenges persist in achieving lifelike aesthetics, enhancing long-term durability, and addressing the complex psychosocial impact of facial defects. The growing appreciation of patient-centered care underscores the need for a more integrated, multidisciplinary approach that combines prosthodontics with surgical sciences, psychology, materials research, and digital engineering.

As emerging technologies such as advanced biomaterials, AI-driven design tools, and regenerative solutions continue to evolve, the future of maxillofacial prosthodontics holds immense promise. Continued innovation, combined with a holistic, empathetic approach to patient care, is poised to redefine global standards in maxillofacial rehabilitation, ensuring that every patient receives care tailored to their individual needs, experiences, and aspirations.

Biography

Dr. Monika Sunil Jadhav is a committed Maxillofacial Prosthodontist with a strong academic and clinical foundation. She completed her undergraduate dental education at MGM Dental College, Mumbai, followed by a postgraduate specialization in Maxillofacial Prosthodontics from MGV Dental College and Hospital. Throughout her academic journey, she has consistently demonstrated excellence, having received accolades for paper presentations at both state and national conferences and contributing to multiple scientific publications. Driven by a passion for innovation in maxillofacial rehabilitation, Dr. Jadhav has focused her current clinical interest on the role of Photobiomodulation in Soft Tissue Healing Around Prostheses. Her interest explores the integration of advanced light-based therapies to enhance peri-prosthetic tissue regeneration, aiming to improve patient outcomes in both function and aesthetics. Dedicated to patient-centered care, she believes in blending technology with empathy to restore not just anatomical structure, but also the confidence and quality of life of her patients. Dr. Jadhav continues to contribute actively to the field through research, clinical practice, and academic engagement.

Monika Osko

Group Dental Practice Marcin Ośko, Monika Ośko sp.c., Poland

Beyond symptoms: Interdisciplinary, neurofunctional approach in orthodontic therapy – A case based perspective

Orthodontic relapse remains a significant challenge in clinical practice, often linked to unresolved underlying functional disorders. Traditional symptom-oriented approaches frequently overlook the complex neurofunctional mechanisms contributing to long-term instability. This presentation proposes an interdisciplinary model rooted in the understanding of cortical repre-sentation, sensory integration, and neuromuscular re-education.

Orofacial functions such as breathing, sucking, and swallowing develop prenatally under brain-stem control but are later integrated with higher cortical centers through sensory stimulation and motor activity. The cortical map—Penfield's homunculus—allocates significant space to the orofacial region, which is sensitive to use-dependent plasticity. Dysfunctional breathing pat-terns, such as chronic oral respiration, may lead to cortical reorganization and suppression of nasal pathway representation, potentially explaining functional persistence despite anatomical correction.

Drawing on the philosophy of the Multifunctional System (MFS), we demonstrate how targeted sensory stimulation and interdisciplinary collaboration—including physiotherapy and speech-language pathology—can reactivate dormant neural pathways and achieve sustainable functional outcomes. Special emphasis is placed on re-establishing nasal breathing as a primary pathway, reprogramming tongue posture, and achieving neuromuscular balance via cranial nerve activation (V, VII, IX, X, XI).

The session will share preliminary results of our current observational study evaluating the im-pact of combined neurofunctional and orthodontic therapy on craniofacial growth, motor control, and postural integration. This approach, by addressing causes rather than symptoms, offers a promising paradigm shift for stable, holistic outcomes in orthodontics.

Keywords: Neuroplasticity, Interdisciplinary Therapy, Cortical Representation, Nasal Breathing, Myofunctional Therapy, MFS Philosophy, Sensory Integration, Relapse Prevention.

Biography

Monika Ośko is a dentist and MFS Ambassador, currently pursuing doctoral studies at the Faculty of Odontostomatol-ogy, University of Barcelona. She is the President of the Polish Society of Myofunctional Therapy and holds a Master Universitario di Secondo Livello in Ortognatodonzia Clinica Avanzata. Monika is an Orthodontic Senior Instructor and Diplomat of the International Board of Orthodontics. She has lectured extensively, including at the Barcelona Ortho-dontic World Institute, and co-authored therapeutic children's books like "Zgryzek i przyjaciele" and "Uwolnić Frenulo." In 2022, Monika founded the Polish Society of Myofunctional Therapy, promoting advancements in functional ortho-dontics and pediatric craniofacial development.

Dr. Naval Ghule

Goregaon Dental Centre, Mumbai, Maharashtra, India

India vs global dentistry: A comparative insight into practice trends, technology & patient expectations

The global landscape of dentistry has evolved significantly, driven by rapid technological advancement, shifting patient expectations, and the rise of evidence-based, patient-centric care. India, with its expanding dental workforce and increasing oral health awareness, is undergoing a parallel transformation. This presentation offers a comparative analysis of dental practice trends in India versus leading global dental systems, highlighting key differences in clinical workflows, digital adoption, treatment planning protocols, and practice management structures.

Countries such as the United States, United Kingdom, and parts of Europe have embraced digital dentistry, preventive-first models, insurance-driven systems, and highly structured regulatory frameworks. India, meanwhile, continues to grow within private-practice dominance, affordability-driven treatment decisions, and rapid expansion of digital tools like aligners, CAD/CAM, and advanced imaging. Patient expectations also differ—while global patients often prioritise long-term preventive care, Indian patients tend to be more treatment-centric and cost-sensitive.

This comparative insight identifies gaps, opportunities, and growth pathways for Indian dentists seeking to elevate clinical standards, adapt global best practices, and align with international benchmarks. The presentation aims to empower dental professionals with strategies to enhance clinical excellence, improve patient experience, and future-proof their practice in a rapidly evolving global healthcare environment.

Biography

Dr. Naval Ghule is a dental public health expert, certified tobacco cessation counselor, with extensive experience in community oral health, dental practice management, and healthcare leadership. He is the founder of Sanskar Seva Sanstha an NGO with a mission to promote Affordable Healthcare for All. He serves as Program Director for Goregaon Dental Centre Education Program and collaborates with major healthcare organisations, including Tata 1mg. Dr. Naval has trained hundreds of dentists through workshops, webinars, and clinical excellence programs, contributing significantly to public health dentistry in India.

Nitesh Kumar

Musgrove Park Hospital, Somerset NHS Foundation Trust, India

Quality improvement project – Improving the quality of radiographs taken in OMFS at Musgrove Park hospital, Somerset NHS foundation trust

Aims: This quality improvement project aims to study aims to systematically improve the quality of intraoral and extra oral radiographs from June 2025 at Musgrove park hospital OMFS department for third molar surgery, localization of maxillary canines, supernumerary teeth and impacted teeth.

Methodology: In June 2025 using Plan, Do, Study, Act (PDSA) cycles and QI improvement methodology, we audited the quality of CBCTs, upper/lower standard occlusals, periapicals and lateral cephalograms taken in the OMFS outpatients department at Musgrove Park Hospital. Over a 4-week period by reviewing radiographs taken and clinical notes taken from our electronic patient record PACs imaging software.

Two PDSA cycles were implemented in July and August 2025 respectively (1) Design of posters for the correct positioning of OPGs and display of educational posters, (2) Teaching sessions to dental nurses in the department hands on demonstrations were carried out including correct patient positioning when taking CBCTs, OPGs, upper standard occlusal radiographs and periapical radiographs. (3) Video tutorials and reading materials sent to nurses and clinicians in the department by email.

Data collection cycles followed each improvement cycle.

Results:

PDSA 1: 80% of radiographs were diagnostically acceptable and 20% diagnostically unacceptable. 50% of CBCTs had radiographic faults of poor contrast or artefacts. Contrast problems emerged as the most prevalent issue, accounting for 90% of the cases. Other common problems included incorrect film positioning in 20% of OPGs and upper standard

occlusal radiographs. Contrast problems emerged as the most prevalent issue, accounting for 90% of the cases. Other common problems included incorrect film positioning in 20% of OPGs and upper standard occlusal radiographs.

PDSA 2: 98% of radiographs taken were taken diagnostically acceptable and 2% were diagnostically unacceptable.

Conclusion: Contrast issues was shown to be the predominant concern affecting image quality. These findings highlight the critical importance of continuous quality improvement initiatives in radiographic practices to enhance diagnostic precision and ensure optimal patient care in oral and maxillofacial surgery.

Biography

Nitesh Kumar graduated from the University of Dundee in 2016 and was recipient of the Dundee dental materials den and St Andrews Dental Alumni Prize in 2015. Following post graduate training in the North east of Scotland Aberdeen, he has worked in oral and maxillofacial units where he can manage medically compromised, head and neck cancer patients and acute OMFS emergencies, has experience with complex oral surgery at University Hospital Southampton NHS foundation trust and Worcestershire Acute general hospital trust hospitals, Musgrove park hospital. Nitesh Kumar has presented at national and international oral surger/ oral surgery and maxillofacial conferences and has publications in peer reviewed journals. He has undertaken many clinical governance projects during his rotations in Oral and Maxillofacial surgery.

Pantelejmon Trpchevski[1*], Metodi Zahariev Abadzhiev[2]

[1]Student, Faculty of Dental Medicine, Medical University-Varna, Bulgaria

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Comparative analysis of modern intraoral scanners: Precision, clinical protocol, and market leaders

Objective: The aim of the present scientific review is to provide a systematic analysis of leading Intraoral Scanning (IOS) technologies up to 2026. The report compares their technical characteristics, clinical performance, and integration into the digital workflow in order to assist dental practitioners in selecting the optimal solution for their clinical practice.

Materials and Methods: A review of technical specifications and available scientific literature was conducted for seven of the most widely used intraoral scanner brands on the global market. The comparative parameters included scanning speed, accuracy (trueness) and precision in full-arch rehabilitation, software capabilities (AI-based soft tissue filtering functions), system openness (export of STL, PLY, and OBJ files), and the ergonomics of the scanning wand.

Results: The analysis demonstrates that contemporary intraoral scanners exhibit exceptionally high accuracy in the fabrication of single-unit restorations and short-span fixed prosthetic constructions. However, significant differences among commercial brands are observed in full-arch scanning with regard to linear deviations. In this context, the iTero Lumina scanner, featuring Multi-Direct Capture technology, demonstrates the highest accuracy, attributed to its multi-camera system. The integration of Artificial Intelligence (AI) significantly reduces clinical time through the automatic removal of artifacts (tongue, cheeks, gloves), while wireless technologies enhance ergonomics without compromising data transfer speed.

Conclusion: The selection of an intraoral scanner should be tailored to the specific focus of the dental practice—prosthodontics, orthodontics, or implantology. Digitalization through IOS not only enhances the precision of fabricated restorations but also serves as a powerful communication tool with both patients and dental laboratories. The transition to a fully digital protocol is a key factor in achieving predictable clinical outcomes in contemporary dental medicine.

Keywords: Intraoral Scanning, Digital Impression Techniques, CAD/CAM, Accuracy, Digital Workflow.

Biography

Pantelejmon Trpchevski, dental medicine student, sixth year, Faculty of Dental Medicine, Medical University of Varna, Bulgaria. He is Former Head of Technical Support and member of the Managing Board of ASDM (Association of Dental Medicine Students–Varna). He is a current member of the Student Council of the Medical University of Varna. Pantelejmon Trpchevski demonstrator in Anatomy and Cell Biology during the period March–May 2022. He is a Brand Ambassador of Denco Medical©–China. Active participant and lecturer at several congresses: ICDO 2025–Rome, Italy; Dent-X Congress 2024–Bucharest, Romania; 30th Anniversary Edition of the International Student Dental Congress, Faculty of Dental Medicine Skopje 2024–Ohrid, Macedonia; ICDO 2024–Madrid, Spain. Passive participant: Sofia Dental Meeting 2022, 2023, 2025–Sofia, Bulgaria; IDS 2025–Cologne, Germany; Shumen Dental Forum 2024–Shumen, Bulgaria, as well as other lectures and demonstrations in the fields of endodontics, digital dentistry, and implantology. He completed summer internships at: Zahnmedizin am Königsplatz–Augsburg, Germany, and at Rendevski Dental Clinic–Bitola, Macedonia.

Priyanka Tiwari
Sumandeep Vidyapeeth University, Singapore

Use of panoramic radiographs for evaluation of maxillary and mandibular residual ridge resorption: *In-vitro* study

Introduction: Progressive ridge resorption is one of the main causes of loss of stability and retention of mandibular complete dentures. The location of the mental foramen can be identified easily on panoramic radiographs, and radiographic examinations are considered an important component of Prosthodontics diagnostic and treatment planning. Also the location of maxillary landmark is important to known how much resorption is there.

Aim: To determine the average ratio of bone height with nearest constant anatomical landmarks in maxilla and in mandible.

Objective: To find out the association between radiographic findings & prosthodontics, such as measurements of the amount of resorption and the variation in the treatment planning of edentulous patients.

Methods: The subjects OPG was taken using standard radiographic procedural parameters. The measurement was done for distance 'c', 'a', 'x', 'y', 'z'. Then the calculations from measurements were done to calculate the ratio of c/a, to calculate the ratio of x/y, to calculate the ratio of x/z.

Result: The descriptive statistics was done. The C/a ratio mean is 2.71±0.31. The X/Y ratio mean is 1.49±0.34 and the X/Z ratio mean is 1.51±0.24.

Conclusion: This ratio can be assessed in edentulous patients and then their further treatment plan can be decided according to the ratio. The implant placement can be assessed by using the measurements in this study.

Keywords: Average Alveolar Bone, Panoramic Radiograph, Mental Foramen, Mandibular Ridge, Zygomatic Process, Maxillary Ridge.

Images:

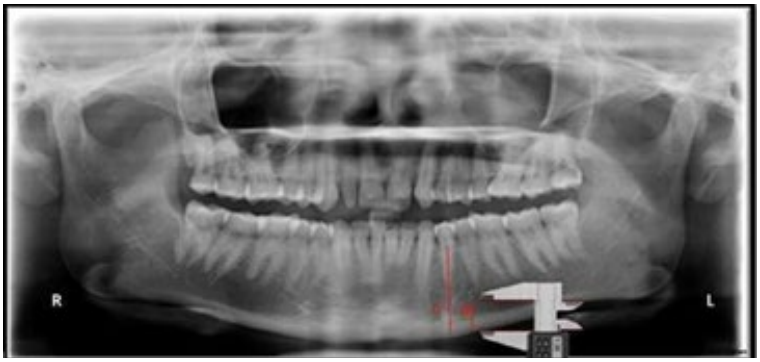

Figure 1: Mandibular landmarks-'c': Is from the inferior border of the mandible to the alveolar crest. 'a': Is from the inferior border of the mandible to lower edge of the mental foramen in dentulous mandible.

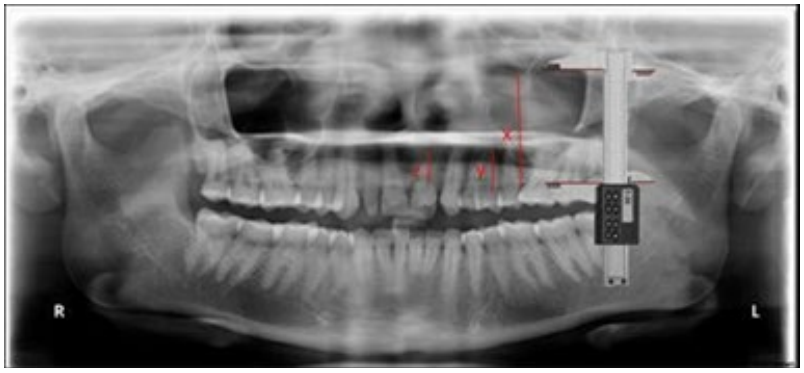

Figure 2: Maxillary landmarks-'x': From line joining most inferior points of borders of bony orbits to line joining inferior margins of images of zygomatic processes. 'y': Point from zygomatic process to alveolar crest in maxillary first molar regions) in dentulous maxilla. 'z': Point from zygomatic process to alveolar crest in maxillary lateral incisor region) in dentulous maxilla.

Biography

Dr. Priyanka Tiwari did her Bachelor's in Dental Surgery (BDS) and Master's in Dental Surgery (MDS) in Prosthodontics from India. Completed a Certificate course by the name "JADE: Joint Alliance Duke-NUS Education Certificate Program in Medical Affairs" in 2020 from Singapore Duke-NUS Medical University. She has 15 years plus of experience in research, teaching & clinical in various eminent hospitals, college and clinics. Dr. Priyanka is a renowned Prosthodontist, Researcher, Reviewer, Editorial board member, International Speaker, Young Scientist award winner, with Certification in Medical Affairs, Former Lecturer in Penang International Dental college, Owner of Patent of a dental instrument, Owner of a copyright article, Book Author, Chapter Author. With numerous publications and research.

Prof Dr. Ramesh Nagarajappa
Department of Public Health Dentistry, The Oxford Dental College, Bangalore, India

Machine Learning (ML) in community oral health screening: The future of mass diagnostics

Oral diseases remain among the most prevalent non-communicable conditions worldwide, disproportionately affecting underserved populations. Conventional community oral health screening programs are constrained by workforce limitations, diagnostic subjectivity, logistical challenges, and delayed data processing. Machine Learning (ML) offers an innovative solution to enhance the efficiency, accuracy, and scalability of mass oral health diagnostics.

ML algorithms can analyze large datasets derived from intraoral images, electronic health records, salivary biomarkers, and behavioral risk indicators to identify early patterns of dental caries, periodontal disease, and other oral conditions. In school and community settings, AI-enabled mobile applications and cloud-based platforms enable rapid, standardized assessments, reducing inter-examiner variability and supporting real-time epidemiological surveillance.

This presentation highlights current applications of machine learning in community screening, including automated image-based caries detection, predictive risk modeling, and digital triage systems. Practical considerations such as algorithm validation, ethical governance, data privacy, cost-effectiveness, and integration into primary health care systems are critically discussed.

By shifting community screening from episodic detection to predictive, data-driven prevention, machine learning holds the potential to strengthen population-level oral health strategies and promote equitable access to early diagnosis and timely intervention.

Keywords: Machine Learning, Artificial Intelligence, Mass Screening, Oral Health, Community Health Services.

Biography

Prof Dr. Ramesh Nagarajappa graduated from the prestigious Bapuji Dental College and Hospital, Davangere, India in 1999. He is presently working as a Vice Principal, Professor and Head, in the Department of Public Health Dentistry at the Oxford Dental College, Bangalore, India. He has post-graduated teaching experience of over 26 years and have guided both PhD and MDS students. He has also authored 140 publications in various international and national reputed journals. He has been a regular reviewer too in many journals. He has also experience in delivering scientific presentations and chairing scientific sessions at various conferences.

Richa Gupta
Independent Medical Writer, Illinois, United States

Dynamic Navigation Systems (DNS) for predictable implant outcomes: Evidence & future trends

Precision in dental implant placement is essential for achieving optimal functional and esthetic outcomes. Dynamic Navigation Systems (DNS) represent a significant advancement in digital implantology by providing real-time, computer-assisted guidance during surgery. Unlike static surgical guides, DNS offers intraoperative flexibility while maintaining high accuracy, allowing clinicians to adapt to anatomical variations and unexpected clinical situations.

Scientific evidence indicates that dynamic navigation systems significantly enhance implant placement accuracy, demonstrating reduced angular, coronal, and apical deviations compared to freehand techniques. Studies also report improved safety by minimizing the risk of injury to vital anatomical structures, as well as enhanced prosthetically driven implant positioning. These benefits are particularly relevant in complex clinical scenarios, including limited bone availability, immediate implant placement, and full-arch rehabilitations. Additionally, the use of DNS supports minimally invasive surgical approaches, potentially reducing surgical trauma, operative time, and postoperative morbidity.

Despite these advantages, adoption of dynamic navigation systems is influenced by factors such as cost, learning curve, and integration into existing clinical workflows. Ongoing technological developments—including artificial intelligence, augmented reality, and improved tracking and imaging technologies—are expected to further enhance accuracy, efficiency, and accessibility. Emerging applications also suggest a growing role for DNS in education, advanced regenerative procedures, and robotic-assisted implant surgery.

Biography

Dr. Richa Gupta is a dental graduate with advanced training in Hospital Management from the National Institute of Health and Family Welfare, New Delhi, India. She holds certification in scientific writing from Stanford University, USA, and has received comprehensive editorial training. With over a decade of experience, Dr. Gupta is a recognized medical writer with extensive publications in national and international journals. She has also served as a conference speaker and journal reviewer. Dr. Gupta has authored more than 15 scientific articles and contributed to over 50 blogs, book chapters, and feature articles, with a strong emphasis on evidence-based dentistry and emerging dental technologies.

Dr. Sagit Baaton DMD, B. Med. Lab

Senior Oral Medicine Specialist, Barzilai University Medical Center, Ashkelon, Israel

Recovery from refractory Bell's palsy via Photobiomodulation Laser Therapy (PBMT)

Bell's palsy is an acute, idiopathic paralysis of the facial nerve, frequently linked to viral reactivation. Most patients recover within 6 weeks to 3 months, but up to 30 percent experience persistent facial weakness, asymmetry, or synkinesis. Moreover, this disorder is frequently accompanied by a significant psychosocial impact leading to depression, social withdrawal, and an overall diminished quality of life. Current clinical guidelines recommend oral corticosteroids as first-line therapy, with or without antivirals. However, in cases of delayed recovery, there is a clear need for employing alternative therapies in order to improve patient outcomes. Adjunctive modalities such as Photobiomodulation Therapy (PBMT) and physiotherapy have shown promise in facilitating nerve regeneration and functional recovery.

We present a case of a 70-year-old man who was referred to our clinic with four months of refractory hemifacial paralysis, subsequent to varicella-zoster virus infection. Prior to arrival, he was treated with combined systemic corticosteroids and antivirals. Clinical examination demonstrated marked facial asymmetry, lagophthalmos, and complete hemifacial paralysis. The patient underwent a personalized treatment protocol, which combined three sessions of PBMT using a 940nm diode laser combined with head and neck physiotherapy over a ten-day period. This treatment approach resulted in remarkable functional improvement and recovery within a relatively short time.

This case highlights the potential use of PBMT as an adjuvant therapy in Bell's palsy, particularly in refractory cases, when promoting neuro-muscular recovery. The significant functional improvement observed within 10 days of laser treatment, occurring four months of symptom onset and beyond the typical spontaneous recovery window, suggest a possible therapeutic effect of PBMT.

Biography

Dr. Sagit Baaton is a Senior physician in Oral Medicine department of Barzilai University Medical Center in Israel. She has extensive clinical expertise in all the fields of oral medicine and particularly in facial pain and temporomandibular disorders. Dr. Sagit was trained internationally in orofacial pain at the Chicago Northwestern University and is a certified mastership diploma in laser therapy from Aachen University in Germany. She is actively involved in clinical research, professional postgraduate education, and is passionate about integrating innovative evidence-based technologies into oral medicine and orofacial pain in practice.

Salah M Ben Hafeed
Orthodontics & Dentofacial Orthopedics Specialist, Yemen

Technology revolution of orthodontics

Introduction: Orthodontics has witnessed significant advancements in technology, revolutionizing the way orthodontic treatment is planned and executed. This presentation will explore the latest technological breakthroughs in orthodontics, focusing on the impact of 3D imaging, virtual treatment planning, digital orthodontics, and computer-assisted treatments. These advancements have not only improved accuracy and predictability but also enhanced efficiency in orthodontic practice.

I. 3D Imaging: Transforming Treatment Planning

A. Cone Beam Computed Tomography (CBCT):

1. CBCT provides detailed three-dimensional representations of the dentition and surrounding structures.
2. It enhances diagnostic capabilities, assisting in accurate treatment planning and identification of complex anatomical features.

A. Intraoral Scanning:

1. Intraoral scanners capture digital impressions of the teeth and soft tissues.
2. They eliminate the need for traditional impression materials and improve patient comfort.
3. Digital models can be easily manipulated and integrated into virtual treatment planning software.

II. Virtual Treatment Planning: Simulating Tooth Movements and Predicting Outcomes

A. Computer-Aided Design (CAD) Software:

1. CAD software allows orthodontists to simulate tooth movements and predict treatment outcomes.
2. Virtual treatment planning enables precise treatment customization and visualization for both patients and orthodontists.

B. Virtual Reality (VR) and Augmented Reality (AR):

1. VR and AR technologies provide immersive experiences, aiding in patient education and treatment communication.
2. Patients can visualize their treatment progress and final results, leading to increased treatment acceptance and satisfaction.

III. Digital Orthodontics: Streamlining Treatment Processes

A. Digital Models:

1. Digital models replace traditional plaster models, enabling easy storage, manipulation, and sharing.
2. They facilitate efficient communication with interdisciplinary team members.

B. Digital Bracket Placement:

1. Computer-guided bracket placement ensures accurate bracket positioning and reduces chairside adjustment time.
2. Precision placement improves treatment efficiency and reduces treatment duration.

C. Robotic Wire Bending:

1. Robotic wire bending systems automate the fabrication of orthodontic archwires.
2. They ensure precise wire shapes, reducing chairside wire adjustments and enhancing treatment efficiency.

IV. Computer-Assisted Treatments: Optimizing Diagnosis and Appliance Design

A. Computer Algorithms in Diagnosis:

1. Computer algorithms analyze patient data to aid in diagnosis and treatment planning.
2. They assist in identifying malocclusion patterns and predicting treatment outcomes.

B. Treatment Planning Software:

1. Treatment planning software integrates patient data and assists in formulating customized treatment plans.
2. It optimizes treatment efficiency and enhances orthodontic outcomes.

C. Appliance Design:

1. Computer-assisted appliance design systems improve the accuracy and precision of orthodontic appliances.
2. They enable the fabrication of customized appliances, such as clear aligners, with enhanced patient comfort and treatment efficacy.

Conclusion: Advances in orthodontic technology have transformed the field, enhancing treatment planning accuracy and efficiency. 3D imaging, virtual treatment planning, digital orthodontics, and computer-assisted treatments have revolutionized the way orthodontists diagnose, plan, and execute treatment. These advancements provide orthodontists with more accurate representations of dentition, simulate tooth movements, streamline treatment processes, and optimize appliance design. By embracing these technological innovations, orthodontists can achieve predictable treatment outcomes, improve patient satisfaction, and further elevate the standards of orthodontic care.

Biography

Dr. Salah M. Ben Hafedh is an accomplished orthodontist and academic with a distinguished career in dentistry. He earned his bachelor's degree from Sana'a University in 2013, followed by a master's degree in orthodontics from the same institution in 2022. He is currently pursuing a PhD at the University of Science Malaysia, where his research emphasizes advanced orthodontic innovations and the integration of emerging technologies in clinical practice. With a strong clinical foundation and a deep commitment to academic excellence, Dr. Ben Hafedh has contributed significantly to the evolving field of orthodontics through both practice and research. His work focuses on enhancing treatment precision, improving patient outcomes, and exploring cutting-edge solutions that merge technology with orthodontic care. At the 11th Edition of the International Conference on Dental Innovations and Technologies, Dr. Ben Hafedh will present on "Technology Revolution of Orthodontic", offering insights into how digital dentistry, artificial intelligence, and machine learning are reshaping orthodontic treatment planning and execution. His lecture will highlight the transformative role of technology in driving efficiency, personalization, and success in modern orthodontic care.

Dr. Shalini Kaushal

Professor, Dept. of Periodontology, Faculty of Dental Sciences, King George's Medical University Lucknow, India

Comparison of Ozone Therapy (OT) and antimicrobial Photodynamic Therapy (aPDT) in periodontitis

Background: This randomized clinical trial evaluated the comparative efficacy of ozone therapy and ICG-mediated antimicrobial photodynamic therapy as adjunctive to scaling and root planing in the management of periodontitis, by assessing clinical outcomes, inflammatory biomarkers, interleukin-1β (IL-1β) and Pentraxin-3 (PTX-3), and microbial load via quantitative PCR.

Materials and Methods: This is a parallel-arm, single-blinded, randomized controlled trial that included 36 patients with Stage III Grade B periodontitis, allocated randomly to three groups. Group 1 {Scaling and Root planing (SRP)}, Group 2 {SRP + Ozone Therapy (OT}), and Group 3 {SRP + Antimicrobial Photodynamic Therapy (aPDT)}. All parameters were recorded at baseline, 1 month, and 3 months.

Results: The change in Plaque Index (PI), Gingival Index (GI), Probing Pocket Depth (PPD), and Clinical Attachment Level (CAL) from baseline to 1 month and from baseline to 3 months was significantly higher in the SRP+OT group ($p<0.001$). Reduction in the microbial count of Porphyromonas gingivalis (Keystone pathogen) (Mean difference=−0.70, $p<0.001$) and Tannerella forsythia (−0.51, $p<0.001$) in SRP+OT, whereas SRP+aPDT provided superior suppression for Fusobacterium nucleatum (−0.76, $p<0.001$) and Prevotella intermedia (0.40, $p<0.001$). No meaningful difference was observed between the two adjuncts for Treponema denticola ($p=0.994$).

Conclusion: All treatment modalities resulted in significant improvements in all the parameters over time. However, SRP+OT consistently achieved the improvement across all parameters, when compared to SRP alone or SRP with aPDT.

Biography

Dr. Shalini Kaushal has completed BDS in 1999 and MDS in 2005 from KGUDS. She is Professor in the Department of Periodontology, F.O.D.S., King George's Medical University, Lucknow. She has published more than 30 publications in different reputed national and international journals. She is life member of many scientific associations and societies like Indian Science congress (ISC) and Indian Society of Periodontology (ISP). She is reviewer of Pubmed National Journal as well as Advisory board member of one reputed journal the paper entitled "Clinical evaluation of newly designed orthodontic tooth brush-a clinical study" awarded "Dental Public Health Award" by NAMS (INDIA) in Oct 2011. She awarded Fellowship of PFA in 2016 and FICD in 2017. She had been chief guide and Co-guide of more than 25 MDS thesis. Her field of interest is role of herbal products like neem and curcumin in chronic periodontitis and did interdisciplinary project on the relationship between chronic periodontitis and rheumatoid arthritis. Presently she is working on role of nanoparticles in periodontal diseases.

Dr. Shveta Setia Thareja

Department of Prosthodontics, Crown & Bridge and Implantology, SGT University, India

Systematic approach to esthetic excellence

Esthetic excellence in modern dentistry is not achieved by isolated techniques or materials, but through a systematic, biologically respectful, and patient-centered approach. Predictable esthetic outcomes rely on structured diagnosis, comprehensive treatment planning, and precise execution, supported by effective collaboration between the clinician, interdisciplinary team, and dental laboratory. This integrated approach forms the foundation for consistent success across all esthetic dental procedures.

A philosophy of minimal intervention, guided by sound biological principles, enhances adhesion, preserves tooth structure, and promotes long-term clinical stability. Advances in restorative materials, adhesive technologies, digital workflows, and clinical protocols have expanded the possibilities in esthetic dentistry, enabling clinicians to tailor solutions that harmonize function, esthetics, and longevity.

This presentation outlines a systematic approach to esthetic excellence, encompassing diagnosis, smile analysis, material selection, preparation design, soft-tissue management, and bonding protocols. Emphasis will be placed on clinically driven decision-making, contemporary classifications, and evidence-based strategies to achieve predictable, natural, and durable esthetic outcomes across a wide spectrum of restorative and cosmetic treatments.

Biography

Dr. Shveta is a distinguished Prosthodontist, academician, and thought leader in contemporary dentistry, widely recognized for her expertise in fixed prosthodontics, digital workflows, and aesthetic rehabilitation. She completed her Bachelor of Dental Surgery from Kurukshetra University, Haryana, India, in 2013, followed by her Master's degree in Prosthodontics from SGT University in 2017, where she developed a strong foundation

in evidence-based clinical practice and academic excellence. As an Eminent speaker and mentor, Dr. Shveta has been actively presenting her clinical insights, research-driven approaches, and future-forward perspectives on prosthodontics at numerous national and international academic forums over the past five years. Her lectures are known for seamlessly integrating scientific rigor with practical clinical application, making her a sought-after speaker for conferences, symposiums, and professional development programs. She currently serves as a mentor for fixed prosthodontics at VATECH India, where she plays a pivotal role in guiding clinicians on advanced restorative solutions and emerging dental technologies. Dr. Shveta is also the founder and visionary leader of Artistree Dentals and Cosmetic Clinic, a center of excellence dedicated to precision dentistry, aesthetics, and patient-centered care. Under her leadership, the clinic reflects her philosophy of combining innovation, ethics, and artistry in dentistry while fostering a culture of continuous learning and clinical excellence. Beyond academia and clinical practice, Dr. Shveta is a prominent media voice and oral health advocate, contributing expert opinions and educational content on leading national platforms such as Times Now and Hindustan Times. Through these engagements, she actively bridges the gap between scientific dentistry and public awareness, reinforcing the importance of preventive care, informed treatment choices, and overall oral health literacy. An esteemed member of the Indian Dental Association and the Indian Prosthodontic Society, she demonstrates strong leadership through her involvement in professional organizations, educational initiatives, and interdisciplinary collaborations. Her work reflects a deep commitment to advancing prosthodontic education, mentoring young clinicians, and shaping the future of dentistry through innovation, research, and responsible leadership. With a career defined by academic integrity, clinical mastery, media engagement, and visionary leadership, Dr. Shveta continues to inspire peers and students alike, positioning herself as a powerful voice in modern prosthodontics and a catalyst for positive change in dental healthcare.

Prof Zilberman Uri

Head of Pediatric Dental Clinic, Barzilai Medical University Center, Ashkelon, Israel

MIH (Molar Incisor Hypomineralization) etiology and treatment options

MIH (Molar Incisor Hypomineralization) is a growing worldwide burden. It affects almost 30% of the children aged 6-16 in Israel and is still increasing. The aetiology is obscure since the defect occurs during the first 2-3 years of life but the clinical expression can be observed after first molar erruption, age 6+. It started with dioxin poisoning of mother milk in 1996 and all the childhood diseases and oxigen shortage to genetic mutations recently.

Amelogenesis: During the secretory stage of amelogenesis the ameloblasts start secreting large amounts of enamel matrix proteins. Several proteins are secreted: Amelogenin (80-90% of the organic matter), ameloblastin (only 5%) and enamelin (3-5%). The enamel proteins are degradated by two proteases: Matrix metalloproteinase 20 (MMP20) and kallikrein 4 (KLK4). We examined the concentration of MMP20 and KLK4 from blood samples of 500 children aged 0-6 years and compared with clinical MIH findings after eruption of the permanent molars. In children wigh MIH the concentration of KLK4 were significantly lower (P value=0.02). The concentration of MMP20 was higher in the MIH group but without statistical significance. In the absence of KLK4, substantial retention of enamel proteins occurs in the enamel. It may be postulated that the retention of the enamel proteins in MIH/dmh teeth was caused by reduced concentration of KLK4.

Biography

Uri Zilberman received his DMD degree in 1983 from the Dental Faculty, Hebrew University, Jerusalem, and his PhD degree in 2000 on basic dental science, especially dental anthropology. Dr. Zilberman has a specialist degree in pediatric dentistry from 1990 and treated children and adolescents for the last 45 years. He is the head of the Pediatric Dental Unit at Barzilai Medical University Center, a unit recognized for specialization in pediatric dentistry since 2007. Associated Professor at the Faculty of Health Science, Ben-Gurion University of the Negev, Beer-Sheva, and teaches a course on Pathophysiology of the Oral Cavity for fourth

year pharmacology students. Prof. Zilberman published more than 90 research papers and chapters in pediatric dentistry and dental anthropology. His main interests are new dental procedures and devices for pediatric dentistry, hereditary disorders and their effect on tooth development, and the use of biomimetic materials in pediatric dentistry, like Glass-Ionomers Cements. He developed new dental procedures and a patented new dental device for pediatric dentistry.

Valeriia Buzova*, Angelina Ivanova
SkyLab AG, Superlab Suisse Epalinges SA, Switzerland

Multifunctional oral care agent: Evaluating remineralization, acid resistance, and hemostatic properties of chitosan hydrochloride

Enamel demineralization remains a persistent clinical challenge. Current approaches face significant limitations: Fluoride-based therapies risk fluorosis, while fluoride-free alternatives suffer from poor solubility, complex formation, calculus deposition, and limited enamel penetration. Moreover, existing approaches fail to meet consumer demand for multifunctional oral care products that not only remineralize enamel but also enhance acid resistance, provide sustained protection, and address gingival bleeding. Natural polymer derivatives offer promising solutions, therefore, this study evaluated the remineralizing, acid-resistant, and hemostatic properties of chitosan and its water-soluble modifications.

Acid-resistance and remineralizing properties were assessed on bovine enamel blocks *in vitro*. Enamel blocks were demineralized at pH 4.5 for 60 minutes, treated with test solutions of chitosan and chitosan hydrochloride for 16 hours at pH 6.5, and then exposed to 8ml of citric acid for 1 hour at 37°C. The percentage of Surface Microhardness Recovery (%SMHR) and the percentage of Relative Erosion Resistance (%RER) achieved by the test products was calculated and used to compare the ability of the test products to repair the demineralized enamel samples. Hemostatic activity of chitosan derivatives (chitosan hydrochloride, carboxymethyl chitosan, and chitosan oligosaccharide) was evaluated by measuring blood coagulation time.

Remineralization efficacy of 0.5% chitosan hydrochloride, assessed by mean percentage Surface Microhardness Recovery (%SMHR), was comparable to 1450ppm fluoride (3.4±4.26 versus 3.74± 6,.87 respectively). Native chitosan showed no protective effect against enamel demineralization (-1.2 ±3.27 %SMHR). Relative Acid Resistance (%RER) measurements demonstrated that chitosan hydrochloride provided significant protection against acid erosion at 0.25% and 0.5% concentrations, achieving -41.9±11.8 and -30.67±16.34 %RER, respectively. Unmodified 0.5% chitosan offered lower protection (-50.99 ± 30.06), comparable

to 1450 ppm fluoride (-44.44±15.89), while deionized water (negative control) resulted in substantial demineralization (-91.25±30.01). Additionally, microscopic evaluation revealed notable adhesive properties of 0.2% chitosan hydrochloride, which remained adherent to enamel following exposure to deionized water flow for 1, 5, and 30 minutes.

Hemostatic activity was evaluated by measuring blood coagulation time after mixing with 0.2% and 0.5% chitosan hydrochloride and 0.25% water-soluble chitosan derivatives (chitosan oligosaccharide, carboxymethyl chitosan, chitosan hydrochloride) and comparing with positive and negative controls: Capramine (aluminum chloride and cetrimonium bromide solution) and 0.9% NaCl solution, respectively. In the first assay, the blood sample containing 0.5% chitosan hydrochloride achieved a mean clotting time of 5.73 s, while 0.2% chitosan hydrochloride averaged 9.45 s. The positive control showed average clotting time of 2.76 s, while the negative control did not clot within 60 s. A subsequent experiment compared the hemostatic efficacy of three chitosan derivatives: Chitosan hydrochloride (38.34 s), carboxymethyl chitosan (27.94 s), and chitosan oligosaccharide (33.74 s), versus Capramine (9.26 s). The 0.9% NaCl control remained unclotted whithin 120 s.

The results of this study demonstrate that natural polymer derivatives offer promising multifunctional solutions, with chitosan hydrochloride demonstrating remineralization and acid-resistance properties alongside hemostatic activity.

Biography

Valeriia Buzova earned a B.Sc. in Biotechnology from M.V. Lomonosov Moscow Institute and an M.Sc. in Innovation Management from Lomonosov Moscow State University. Her early research focused on investigating antibiotic-resistance mechanisms in nosocomial Gram-negative bacteria, vaccine development against Streptococcus and drug discovery for COVID-19. She currently works at SkyLab AG (Switzerland), developing innovative oral-care systems, targeting enamel whitening, remineralization, and cariogenic-bacteria inhibition. Valeriia Buzova is an author of four scientific articles and three international patent applications, she has contributed to the launch of over ten cosmetic products featuring her innovations.

Dr. Vandana Chhabra Associate Professor

Dr. HSJ Institute of Dental sciences and Hospital, Chandigarh, India

Fluorouracil in oral and maxillofacial surgery

5-Fluorouracil (5-FU) is an antimetabolite chemotherapeutic agent that interferes with DNA synthesis in rapidly proliferating cells, leading to apoptosis and inhibition of cellular proliferation. Traditionally used in the treatment of malignancies such as Basal Cell Carcinoma (BCC) and actinic keratosis, 5-FU has recently been explored for the management of Odontogenic Keratocyst (OKC) and ameloblastoma. The drug acts as a thymidylate synthase inhibitor, thereby disrupting the cell cycle and promoting tumor cell death. Studies have demonstrated that topical application of 5-FU following surgical enucleation of OKC significantly reduces recurrence rates and minimizes postoperative complications such as permanent paraesthesia, compared to conventional chemical cauterization techniques. At the molecular level, the role of 5-FU relates to the inhibition of signaling pathways associated with PTCH1 gene mutations, which are implicated in both BCC and OKC pathogenesis through activation of the Smoothened (SMO) and Sonic Hedgehog (SHH) pathways. These findings highlight 5-FU as a promising adjunctive therapeutic option for OKC, offering a targeted, conservative, and effective approach to reduce recurrence and morbidity in affected patients.

Dr. Vandana Singh

Additional Professor, Dept. of Oral Medicine and Radiology,
Faculty of Dental Sciences, King George's Medical University
Lucknow, India

Chair to bedside: Translational advances in salivary biomarker analysis

Saliva has emerged as a promising diagnostic biofluid, offering a non-invasive, cost-effective, and patient-friendly alternative to blood-based investigations. The concept of "from chair to bedside" underscores the translational journey of salivary biomarker research—from laboratory discovery to routine bedside clinical application. This lecture aims to highlight recent translational advances in salivary biomarkers and their growing relevance in clinical decision-making across medical and dental disciplines.

Advances in molecular biology, proteomics, genomics, metabolomics, and nanotechnology have significantly expanded the diagnostic potential of saliva. A wide array of salivary biomarkers, including proteins, nucleic acids, hormones, antibodies, and microbial signatures, have demonstrated strong correlations with local and systemic diseases. These biomarkers have shown promise in the early detection, prognosis, and monitoring of conditions such as oral cancer, periodontal diseases, diabetes mellitus, cardiovascular disorders, autoimmune diseases, and viral infections. The development of highly sensitive analytical platforms and point-of-care devices has further accelerated the translation of salivary diagnostics into chairside and bedside settings.

This lecture will discuss the biological basis of saliva as a diagnostic medium, key milestones in biomarker discovery, and validation strategies essential for clinical translation. Emphasis will be placed on real-world applications, including chairside screening tools, personalized medicine, and disease monitoring, as well as the integration of salivary diagnostics into routine clinical workflows. A comprehensive approach with different clinical studies, done by author will be discussed.

Biography

Dr. Vandana Singh, Addtional Professor, Department of Oral Medicine & Radiology at Faculty of Dental Sciences, King George's Medical University, Lucknow, India is an eminent Oral Physician with over 13 years of clinical, research, and academic experience. She completed her BDS from KGMU in 2005 and MDS in Oral Medicine and Radiology from Mahatma Gandhi Postgraduate Institute, Puducherry, in 2011. Her key areas of interest include early detection of oral cancer, premalignant disorders, and saliva diagnostics. She is nominated as a Rural Oral Cancer Training and Screening Expert under NRHM, India, and holds lifetime membership in various national and international professional bodies, including IAOMR, the European Academy of Oral Medicine, and the Indian Dental Association. She has authored book chapters and published 25 research papers in reputed journals. She is actively involved in intramural and extramural research projects and has been invited as an international guest speaker at several conferences.

Dr. Vinay Kumar Gupta[1*], Dr. Aayushi Agrawal[2], Dr. Nishita Kankane[3]

King George's Medical University Lucknow, India

Efficacy of novel 'DHATRI' mHealth intervention in modifying oral health status and behavior among preschool child-mother dyads: Randomized Controlled Study

Introduction: Early childhood caries prevention requires understanding both intervention efficacy and psychological mechanisms driving behavioral change. This study evaluated DHATRI (Devising Home Assisted child Tooth-brushing Related Initiative), a novel Theory of Planned Behavior-based mHealth application, examining which psychological predicted sustained toothbrushing behavior among mother-child dyads in resource-constrained populations.

Methodology: A cluster-randomized controlled trial enrolled 90 mother-child dyads (intervention n=45; control n=45) from Lucknow preschools. The intervention group received the DHATRI app featuring animated toothbrushing timer and multimedia oral health videos/tips in Hindi/English (6-month delivery), while controls received conventional pamphlet-based education. Primary outcomes included plaque index reduction and mechanistic assessment of Theory of Planned Behavior constructs (attitude, subjective norms, perceived behavioral control, self-efficacy) as behavioral predictors via linear regression.

Results: At six months, the intervention group achieved 44.8% plaque index reduction versus 10.7% control ($p<0.001$) with 40.81% prevented fraction for decayed surfaces. Behavioral determinants differed significantly between groups: at baseline, control mothers' brushing was predicted by attitude ($B=0.023$, $p=0.026$) and perceived behavioral control ($B=0.064$, $p=0.009$), while intervention mothers responded to subjective norms ($B=0.034$, $p<0.001$) and income ($B=0.085$, $p=0.050$). By 6 months, subjective norms sustained exclusively in intervention group ($B=0.030$, $p=0.010$), while attitude ceased predicting behavior in both groups, indicating transition from intention-driven to habit-driven execution. Clinical improvements were mechanistically explained by sustained social influence activation and incremental competence-building through app scaffolding.

Conclusion: Theory-based mHealth design produces clinical efficacy through sustained social influence pathways and competence-building rather than pre-existing confidence. This integrated mechanistic evidence demonstrates a paradigm for designing digital interventions.

Biography

Dr Vinay Kumar has more than 17 yrs of experience in research, hold esteemed national and international organizations membership & fellowship in dentistry. He was honored with the prestigious "Best Teacher Award" from KGMU, Lucknow, on Teachers Day in 2014, 2016 and other awards from different organizations. As Principal Investigator in various intramural & extramural research grant.. He has presented more than 20 papers and posters at international and national conferences and has over 70 publications at various peer-reviewed journals. Under his leadership, he has supervised many postgraduate and PhD student.

Wan Yee Liang*, Jeena Patel, Zahra Shehabi, Stacey Clough
Special Care Dentistry, Royal London Dental Hospital, United Kingdom

Evaluating remimazolam IV sedation via infusion pump in special care dentistry: A retrospective review

Background: Remimazolam is a short-acting benzodiazepine with rapid onset, predictable titration, and a favourable recovery profile. In dentistry, intravenous sedation has traditionally relied on intermittent bolus administration of midazolam, which can be associated with variable sedation depth, limited flexibility during prolonged procedures, and unpredictable recovery. Delivering remimazolam via an infusion pump allows continuous administration and real-time dose adjustment, potentially improving sedation stability and clinical workflow. Evidence describing infusion-based remimazolam in dental settings remains limited. This study evaluates its use in Special Care Dentistry, focusing on clinical outcomes and practical benefits and limitations.

Methods: A retrospective review was conducted of 80 intravenous sedation cases using remimazolam delivered via infusion pump in the Special Care Dental Department at the Royal London Hospital. Data collected included patient demographics, ASA classification, Body Mass Index (BMI), infusion flow rates, bolus doses, sedation model (single operator-sedationist or separate sedationist), recovery time, and sedation outcome. Sedation success was defined as completion of the planned treatment without the need for flumazenil reversal or the occurrence of significant adverse events. Descriptive analysis was performed to explore trends across age groups, ASA grades, and BMI.

Results: Sedation was successful in 72 of 80 cases (90%). Patients represented a wide range of ages, ASA classifications, and BMIs, with a mean BMI of 27.6. BMI did not appear to significantly influence sedation success or recovery time. The average infusion flow rate for patients aged under 65 years was 21.1mg/hr, compared with 17.3mg/hr for patients aged 65 years and over, suggesting lower infusion requirements in older patients.

A wide range of dental procedures was completed, including implant placement, dental extractions, restorative treatment, endodontic procedures, and scaling. The duration of continuous infusion during which patients remained sedated ranged from 6 to 88 minutes, demonstrating the adaptability of the infusion technique for both short and prolonged procedures. The infusion pump allowed real-time adjustment of sedation depth in response to patient cooperation, oxygen saturation, and procedural stimulation. Both operator-sedationist and separate sedationist–operator models were used successfully. Mean recovery time was 20.1 minutes, demonstrating rapid and predictable emergence following cessation of the infusion.

No cases required flumazenil reversal, and no significant respiratory or cardiovascular adverse events were recorded. Despite infusion durations of up to 88 minutes, recovery times remained predictable. Continuous infusion reduced the need for repeated clinician intervention, contributing to smoother workflow and improved operating conditions in behaviorally and medically complex patients.

Conclusion: Remimazolam administered via infusion pump appears to be an effective and flexible sedation technique for patients undergoing dental treatment in Special Care Dentistry. High sedation success rates were achieved across a broad spectrum of patient characteristics, including age, ASA grade, and BMI. Infusion-based delivery enabled individualized titration, stable sedation without pronounced peaks and troughs, and smooth recovery profiles. This technique also supported both single operator-sedationist and two-clinician sedation models, offering potential benefits for service delivery and staffing efficiency. Further prospective studies are warranted to strengthen the evidence base and explore optimization of infusion protocols.

Biography

Wan Yee Liang is a dentist who graduated from Barts and the London School of Medicine and Dentistry. She has worked as a general dental practitioner and subsequently completed Dental Core Training Year 1 in Community and Special Care Dentistry within Barts Health NHS Trust. Wan Yee is currently undertaking Dental Core Training Year 2 in Oral Surgery and Oral and Maxillofacial Surgery at the Eastman Dental Hospital. Her professional interests include the delivery of dental care for patients with complex medical and behavioural needs, and the use of intravenous sedation to support access to treatment in Special Care Dentistry.

Yesh Sharma
Pacific Dental College and Hospital, India

Advances in root canal procedures: Enhancing efficiency and success rates

Root canal procedures have undergone significant advancements in recent years, transforming the way endodontic treatments are performed. The integration of cutting-edge technologies, innovative materials, and refined techniques has improved the efficiency, predictability, and success rates of these procedures. This review highlights the latest developments in root canal instrumentation, irrigation solutions, and obturation materials, as well as the role of digital technologies, such as Cone-Beam Computed Tomography (CBCT) and guided endodontics, in enhancing treatment outcomes. Additionally, the importance of minimally invasive approaches, preservation of tooth structure, and enhanced disinfection protocols are discussed. By embracing these advances, clinicians can provide more effective, comfortable, and long-lasting root canal treatments, ultimately benefiting patients worldwide.

Keywords: Root Canal Procedures, Endodontics, Advances, Instrumentation, Irrigation, Obturation, Digital Technologies, Minimally Invasive Dentistry.

Biography

Dr. Yesh Sharma is a renowned endodontist and Associate Professor at Pacific Dental College and Hospital in Udaipur, Rajasthan, known for his impactful contributions to conservative dentistry and endodontics. He completed his graduation from Sri Siddartha Dental College in Tumkur, Karnataka, followed by a postgraduate degree in Conservative Dentistry and Endodontics from Maharaja Ganga Singh Dental College in Sriganga Nagar, Rajasthan. Widely recognized for his exceptional achievements, Dr. Sharma holds multiple international awards, including a world record as the youngest dentist to publish more than 30 research papers at the age of 24. He has been honored as the Best PG Student of the year at the International Oscars of Dentistry Awards 2019 and the Indian Health Professional Awards 2017, and has received distinctions such as Emerging Endodontist of the Year and the Young Scientist Award. A Fellow of both the International College of Dentists and the Pierre Fauchard

Academy, Dr. Sharma has authored over 80 national and international publications, covering topics such as endodontic surgery, dental caries vaccines, and laser applications in dentistry. He has served as a dental surgeon at Shri Ranga Super Specialist Dental Hospitals and currently continues his academic and clinical work at Pacific Dental College and Hospital, while also contributing as an editorial board member for various international journals. Passionate about teaching, he emphasizes the importance of staying updated with advancements in dentistry and encourages students to balance academic excellence with extracurricular engagement, believing strongly in mentorship and giving back to the community.

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POSTER PRESENTATIONS

Akari Noda[1*], Kazuto Hoshi[1,2]

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The development of alternative exam method for exfoliative cytodiagnosis by deep learning

Exfoliative cytology has long been regarded as a useful screening examination in oral medicine because it is simple to perform, minimally invasive, and imposes little burden on patients. Early detection of oral mucosal disorders, particularly oral precancerous and cancerous lesions, is critical for improving treatment outcomes and survival. However, the reliability of exfoliative cytology remains limited. Diagnostic accuracy is often compromised by artifacts such as blood and saliva, as well as variability in the number and quality of collected cells, which largely depend on the operator's technique. These limitations have hindered its widespread clinical adoption, underscoring the need for more consistent and operator-independent diagnostic approaches.

In the field of oral surgery, clinical photographs of lesions are routinely obtained using single-lens reflex cameras for medical records. Such images are readily available and reflect real-world clinical practice, but they are generally unsuitable for image analysis due to the lack of standardization, differences in lighting conditions, and, in some cases, the use of mirrors during capture. Despite these challenges, we hypothesized that advances in deep learning could enable the extraction of clinically relevant information from these non-standardized images, thereby providing a novel diagnostic pathway.

In this study, we developed a Convolutional Neural Network (CNN)-based deep learning model to predict cytological atypia directly from general clinical photographs. The model was trained to classify cytological atypia into five categories: Class I (normal), Class II (atypical), Class III (intermediate), Class IV (suggestive of cancer), and Class V (positive cancer).

The model achieved strong diagnostic performance, with an accuracy of 0.9487, recall of 0.9454, precision of 0.9566, F1-score of 0.9504, and mean AUC of 0.9950. These results demonstrate that deep learning applied to routine clinical photographs can achieve high accuracy and reliability, independent of operator technique.

In conclusion, this approach may serve as a non-invasive and practical diagnostic aid for oral mucosal disorders. By leveraging images that are already collected in routine practice, it has the potential to expand access to early detection and support clinical decision-making in oral healthcare.

Biography

Dr. Akari Noda, MD, is affiliated with Department of Sensory and Motor System Medicine Graduate School of Medicine, the University of Tokyo. She is a dentist specialized in oral and maxillofacial surgery, with a strong background in oral diseases. In parallel, she has worked as a data scientist, developing and applying image recognition algorithms. By integrating her clinical and technical expertise, her research focuses on deep learning–based image analysis in oral cancer, mucosal disorders, cellular atypia, and oral hygiene assessment. Dr. Akari work aims to establish novel diagnostic tools specific to the oral field, advancing interdisciplinary collaboration between dentistry and data science.

Hee-Kyung Kim[1*], Jeong-Won Shin[2], Jeong-Keun Lee[3]

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Effect of surface treatments of zirconia on shear bond strength

Purpose: The purpose of this study was to evaluate the effect of surface treatments on the shear bond strength of two types of zirconia (3-TZP and 5Y-PSZ) with resin cement.

Materials and Methods: Two different types of zirconia specimens with a fully sintered size of 14.0 × 14.0 × 2.0mm^3 were prepared, polished with 400, 600, and 800 grit silicon carbide paper, and buried in epoxy resin. They were classified into four groups each; control, sandblasting, primer, and sandblasting & primer. Cylindrical resin adhered to the surface-treated zirconia with resin cement. It was stored in distilled water (37°C) for 24 hours, and a shear bond strength test was performed. The normality of the experimental group was confirmed with the Kolmogorov-Smirnov & Shapiro-Wilk test. The interaction and statistical difference were analyzed using a two-way ANOVA. A post-hoc analysis was performed using Dunnett T3.

Results: As a result of two-way ANOVA, there was no significant difference in shear bonding strength between zirconia types (P>.05), but there was a significant correlation in the sandblasting, primer, and alumina sandblasting & primer group (P<.05). Dunnett T3 post-test showed that, regardless of the type of zirconia, shear bonding strength was sandblasting & primer>Primer>sandblasting>control group (P <.05).

Conclusion: There was no difference in shear bond strength between the types of zirconia. The highest shear bond strength was shown when the mechanical and chemical treatments of the zirconia surface was performed simultaneously.

Biography

Hee-Kyung Kim DDS, PhD is a Professor at Ajou University School of Medicine, Republic of Korea. Her research focuses on dental biomaterials, plasma-activated water, and AI-based oral disease diagnostics. She has led multiple interdisciplinary projects integrating microbiology, materials science, and data-driven approaches for disease-specific oral therapies. Her recent work emphasizes species-selective antimicrobial strategies, tissue safety, and translational applications for clinical dentistry.

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Effect of collagen plug application on healing of the extraction socket after surgical removal of a partially impacted mandibular third molar: A randomized split-mouth clinical trial

Objectives: Surgical extraction of partially impacted mandibular third molars is one of the most common procedures in oral surgery. Due to limited soft tissue coverage, primary closure is often incomplete, which can result in prolonged postoperative complications such as edema, delayed healing, and food impaction. This study aimed to evaluate the effectiveness of a bovine-derived collagen plug in enhancing soft tissue healing and socket preservation following surgical extraction.

Materials and Methods: This randomized split-mouth clinical trial included 30 patients requiring bilateral surgical extraction of partially impacted lower third molars. Each patient underwent two surgeries with a 4-week interval; one side received a bovine collagen plug (Bone Protect Cone, Dentegris, Germany) into the extraction socket, while the contralateral side served as the control. Postoperative parameters—edema (linear measurements), pain (Visual Analog Scale), socket dimensions (caliper), and maximal interincisal mouth opening—were assessed on days 2, 7, and 14. Data were analyzed using SPSS v22 with a significance threshold of $p<0.05$.

Results: Collagen plug application significantly reduced edema on days 2 and 7 ($p<0.001$), but not at day 14 ($p>0.05$). The socket dimension was significantly smaller in the collagen group at all time points ($p<0.001$). There was no statistically significant difference in postoperative pain scores or mouth opening between groups ($p>0.05$).

Conclusion: Collagen plugs improve early soft tissue healing and reduce socket dimensions following third molar surgery. This low-cost, biocompatible intervention can be recommended as a supportive approach to enhance healing in cases of partial impaction where primary closure is difficult.

Keywords: Partially Impacted Mandibular Third Molar, Collagen Plug, Extraction Socket, Wound

Healing, Edema, Split-Mouth Clinical Trial.

Conflict of Interest: The author declares no conflict of interest. This work has not been previously published or presented in any scientific journal or congress.

Nitesh Kumar*, James Gallagher
Worcestershire Acute Hospitals NHS Trust,
United Kingdom

A quality improvement project – Improving consent for procedures carried out in oral and maxillofacial surgery

Royal College of Surgeons place emphasis on the importance of full, accurate and legible completion of consent forms as an important part of the process of gaining informed consent. Consent forms completed in the outpatient setting in the oral and maxillofacial department were at Worcestershire Acute hospitals NHS trust were not adequately completed in certain circumstances. A quality improvement project was undertaken to improve the completion of consent forms within the department.

Baseline Information on Completion of: (1) Patient details, (2) Consultant details, (3) Legibility, (4) Use of abbreviations in description of operation/complications, and (5) Patient signatures was collected. 50 patients undergoing elective and emergency oral maxillofacial procedures were randomly identified over a two month period. 4 PDSA cycles were undertaken which included targeted teaching to dental core trainees and juniors in the department on use of consent forms, proforma and consent aide sheets placed in clinics to aid consent from clinicians, consent form aid prompts with common risks and complications, reminder emails, messages on whatsapp, discussion at departmental meetings and the introduction of consent form stickers.

Baseline Data Collection Include: 20% were noted to have inadequate complications listed (score 0 [>5 risks missing) when compared to the standard. 25% were noted to have inadequate benefits discussed. 90% of consent forms had a legible clinician or patient signature. Adequate procedural details were present in 100%. Full consenter details including clinician signature and data were present in 70%. 70% of the consent form copies were offered or given to the patients.

Outcome measure 1 (legibility of documentation) increased from 62% to 100% and on the reaudit months later was sustained at 100%. Outcome 2-benefits of a score of 3 was noted from 75% to 100%. Patient signature, name and dating) rose from 90% to 100% The documentation

of risks/complications of a score of 3 rose from 80% to 100%.100% of consent forms were now offered to patients, increasing from 40%. Documentation of patient details started at 95% and steadily increased to 100% over the 4 cycles and remained at 100% throughout the QI project.

Conclusion: This QIP project has shown significant improvements in the quality of consent form completion. These improvements, and the discussion that the project has provoked within the oral and maxillofacial department, are likely reflective of improvements in the process of taking consent which is of benefit to patients and clinicians.

Biography

Nitesh Kumar Graduated from the University of Dundee in 2016 and was recipient of the Dundee dental materials den and St Andrews Dental Alumni Prize 2015. Following post graduate training in the North east of Scotland Aberdeen, worked in oral and maxillofacial units where he can manage medically compromised, head and neck cancer patients and acute OMFS emergencies, has experience with complex oral surgery at University Hospital Southampton NHS foundation trust and Worcestershire Acute general hospital trust hospitals, Musgrove park hospital. He has presented at national and international oral surgery and maxillofacial conferences and has publications in peer reviewed journals. He has undertaken many clinical governance projects during his rotations in Oral and Maxillofacial surgery.

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WORKSHOP PRESENTATIONS

Angelina Ivanova

SkyLab AG, Superlab Suisse Epalinges SA, Switzerland
School of Physical and Chemical Sciences, Queen Mary University of London, London, UK

UVB-Independent vitamin D3 production in gingival fibroblasts: A novel role of Passiflora edulis extract in oral tissue health

Vitamin D3 deficiency is a global health concern, affecting skin homeostasis, immune function, and periodontal tissue integrity. Conventional vitamin D3 synthesis depends solely on UVB radiation, limiting protection in low-light environments. This study investigates whether Passiflora edulis extract can stimulate vitamin D3 production in oral tissues in the absence of solar exposure.

Primary human gingival fibroblasts were cultured and exposed to three non-cytotoxic concentrations of Passiflora edulis extract (1.00, 3.17, and 10.01 mg/mL) for 72 hours without UVB radiation. Cell viability was assessed using MTT assay. Vitamin D3 quantification was performed using ELISA methodology. Data analysis employed ANOVA with Bonferroni post-test at 5% significance level.

Passiflora edulis extract promoted dose-dependent increases in vitamin D3 production: 40.65% ($P<0.05$) at 1.00 mg/mL, 68.10% ($P<0.001$) at 3.17 mg/mL, and 89.86% ($P<0.001$) at 10.01 mg/mL compared to basal control. All tested concentrations were non-cytotoxic to gingival fibroblasts.

This study demonstrates that Passiflora edulis extract enhances vitamin D3 synthesis in oral mucosa independent of UVB radiation exposure, offering a novel approach to vitamin D supplementation in oral care formulations and supporting periodontal health in photoprotection-dependent populations.

Additional data on cutaneous tissue: Parallel experiments on human skin keratinocytes were conducted using molecular docking (AutoDock 4.2) to assess chlorogenic acid (extract constituent) affinity to lanosterol oxidase and vitamin D3 receptor. In silico analysis confirmed chlorogenic acid docking compatibility with target proteins. In skin keratinocytes without UVB: vitamin D3 increased 125.86–274.04-fold dose-dependently ($p<0.01$). With UVB exposure, extract concentrations of 3.17 and 10.01 mg/mL enhanced vitamin D3 production by 45.82% and 61.41%, respectively versus UVB control ($p<0.05$).

Biography

Angelina Ivanova holds a Bachelor's in Biotechnology and an MSc in Medical Chemistry. With extensive experience in biochemistry, cosmetic chemistry, and R&D management, she has led the development of multiple commercial product lines spanning skincare, oral care, hair care, and dietary supplements. She is a member of the Royal Society of Cosmetic Scientists and the American Chemical Society. Angelina Ivanova has authored 3 patents with 12 additional applications filed, implemented 6 technologies in market products, and participated as a speaker and session chair at international conferences.

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The comparative evaluation of the masticatory efficiency of root supported attachment retained overdenture and implant supported overdenture by EMG: An *in-vivo* study

The masticatory efficiency of complete denture, implanted supported, root supported and attachment retained overdenture, was checked by the electromyography, which would help in gaining information about the neurophysiologic mechanisms regulating the complex masticatory action and deciding the best treatment for the patients. The study was divided into two groups. In group one, there were five patients, these patients were first given complete denture and then given two implant supported overdenture. In group two, there were five patients, these patients were first given root supported overdenture and then given root supported attachment retained overdenture. Their masticatory efficiency was evaluated during clenching and mastication of masseter and temporalis muscles. This was done by the best proven method which is electromyography. Mean masticatory efficiency was found out during clenching and mastication and was tabulated and statistically analysed using unpaired and paired t-test. As a result, the unpaired and paired t-test suggest that a significant statistical difference was obtained in the mean masticatory efficiency of the two-implant supported overdenture while clenching and mastication ($P<0.0001$). This showed that the two- implant supported overdenture had the maximum masticatory efficiency during clenching and mastication compared to the other three treatment modalities. As a conclusion, patient rehabilitated with two-implant supported overdenture gave the maximum masticatory efficiency values during clenching and mastication for both the muscles masseter & temporalis followed by attachment retained overdenture, root supported overdenture and conventional complete denture.

Keywords: Two-Implant Supported Overdenture, Root Supported Overdenture, and Attachment Retained Overdenture, Masticatory Efficiency, and Electromyography.

Biography

Dr. Priyanka Tiwari did her Bachelor's in Dental Surgery (BDS) and Master's in Dental Surgery (MDS) in Prosthodontics from India. Completed a Certificate course on Medical Affairs in 2020 from Singapore Duke-NUS Medical University. She has 15 years plus of experience in research, teaching & clinical in various eminent hospitals, college and clinics. Dr. Priyanka Tiwari is a renowned Prosthodontist, Researcher, Reviewer, Editorial board member, International Speaker, Young Scientist award winner, with Certification in Medical Affairs, Former Lecturer in Penang International Dental college, Owner of Patent of a dental instrument, Owner of a copyright article, Book Author, Chapter Author. With numerous publications and research.

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