Compiled by Johan Hartshorne[1] and Hugo Johan Kotzé[2]

Purpose: The purpose of the column is to highlight significant research findings, advancements, and clinical guidelines in dentistry, as published in the leading high-impact Dental and Medical Journals in 2026.

1. Expert consensus on the treatment of oral diseases in pregnant women and infants

Field: Oral Medicine / Maternal–Child Health
Type: Expert Consensus
Clinical and Practical Significance:
Oral health in mothers and infants is a continuous, lifelong process—beginning before conception, continuing throughout pregnancy, and extending into early childhood. The document highlights the interconnection between maternal oral health, foetal development, and long-term child well-being. It highlights the need for early prevention, timely intervention, and multidisciplinary collaboration among dentists, obstetricians, and paediatricians.

Key Findings:

- Maternal oral health directly influences pregnancy outcomes and infant development, linking oral disease control with overall systemic health.

1. Preconception: Comprehensive oral screening and treatment of caries, periodontitis, and impacted third molars are recommended before pregnancy to reduce inflammatory and infectious risks.
2. Pregnancy:
    - Maternal periodontitis and nutritional deficiencies (Vitamin D, calcium) are associated with preterm birth, low birth weight, and enamel hypoplasia.
    - The second trimester is considered safest for necessary dental procedures such as scaling, restorations, and extractions, with shielded radiography and lidocaine regarded as safe when indicated.
    - Common conditions such as pregnancy, gingivitis, and granulomas should be managed conservatively to maintain comfort and reduce systemic load.
3. Infancy and Early Childhood:
    - Delivery mode and feeding practices influence the infant's oral microbiome—vaginal birth and breastfeeding promote healthier microbial colonization.
    - Early hygiene habits should begin at the eruption of the first tooth, with brushing, nightly gum cleaning, and fluoride use.
    - Avoid prolonged bottle feeding and pacifier use beyond 12 months to prevent malocclusion and early childhood caries.

- For Mothers: Preconception screening, reduction of sugary foods, and trimester-specific dental care are vital to ensure safe, stable oral health during pregnancy.
- For Infants: Early oral care, timely weaning of bottles and pacifiers, and adherence to WHO breastfeeding recommendations form the foundation for healthy growth and development.

Reference:
Zhang J, Zhou C, Zheng L, et al. Expert consensus on the treatment of oral diseases in pregnant women and infants. Int J Oral Sci. 2025;17:62. https://doi.org/10.1038/s41368-025-00395-3

2. How to distinguish myogenous and arthrogenous pain in patients with temporomandibular disorders?

A Retrospective Cross-sectional Clinical Study
Field: Temporomandibular Disorders / Oral and Maxillofacial Surgery
Clinical and Practical Significance:

- Temporomandibular disorders (TMDs) are common, yet distinguishing myogenous (muscle-related) from arthrogenous (joint-related) pain remains challenging.
- This study compared clinical characteristics, psychological profiles, and treatment outcomes among different TMD pain subtypes using the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD).

Key Findings:

- Myogenous TMD is statistically significant associated to masseteric or temporal pain.
- Patients with myogenous pain showed higher levels of depression and somatization compared with those with arthrogenous pain.
- Preauricular and intra-auricular pain are more likely to be associated with arthrogenous TMD.
- Arthrogenous patients report unilateral pain while bilateral pain is more indicative of myogenous TMD.
- Self-reported unilateral pain with finger indication is more likely associated with arthrogenous pain, both on cranial or masticatory areas.
- Arthrogenous TMD was associated with greater limitation in mouth opening but a lower prevalence of chronic pain.

Reference:
Prati S, Pagnano S, Valenti C, et al. Does pain localization in patients with temporomandibular disorders discriminate between myogenous and arthrogenous sources? J Oral Maxillofac Surg. 2026. https://doi.org/10.1016/j.joms.2026.02.020

3. Bone grafts: everything you need to know

Field: Implant Dentistry / Periodontology/ Oral Surgery
Purpose: This perspective article reviews the evolution of implant placement timing, current evidence-based practices, and emerging concepts.
Clinical and Practical Significance:

- Bone graft materials have become an essential part of periodontology and implant dentistry.
- Understanding the advantages and limitations of different graft types helps clinicians select the most appropriate material for specific clinical situations.
- This review summarised the biological mechanisms, classification, and clinical applications of bone graft materials used.

Recommended bone graft concept:

- Periodontal regeneration: EMD combined with Xenograft or Allograft for space maintenance – Autogenous bone required occasional in deep defects.
- Socket preservation: Particulate Xenograft or ß-TCP (membrane as needed) – Autogenous bone is not required.
- Sinus lift: Xenograft /Alloplast for stage lifts; ≤ 30% autograft chips when < 4months healing is required – Autogenous bone only required in large and early load cases.
- Ridge augmentation (Lateral and vertical): 30-70% autograft chips or block mixed with slowly resorbing scaffold – Autogenous bone is essential.
- Peri-implantitis reconstructive surgery: Xenograft or Alloplast when post-surgical recession is an issue, without membrane or biologics – Autogenous bone is rarely required.

Reference:
Haugen HJ, Sanz J, Perale G, et al. Bone Grafts: Everything You Need to Know. J Periodontal Res. 2026 Feb 19. https://doi.org/10.1111/jre.70087

[1] *Johan Hartshorne, B.Sc., B.Ch.D., M.Ch.D., M.P.A., Ph.D. (Stell), FFPH.RCP (UK) General Dental Practitioner*
Intercare Medical and Dental Centre, Tyger Valley, Bellville, South Africa, 7530. Email: johan.laptop@intercare.co.za

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4. Biodentine vs MTA for pulpotomy in primary teeth

Field: Endodontics (Paediatric)
Methodology: Systematic Review & Meta-analysis of Randomized Controlled Trials
Clinical and Practical Significance:
- Both Biodentine and MTA are safe and effective materials for pulpotomy in primary teeth.
- Biodentine provides similar success to MTA but is often easier to use in practice due to quicker setting and lower discoloration risk.

Key Findings:
- Eleven RCTs with follow-up of 6–24 months were included.
- No significant difference in clinical or radiographic success between Biodentine and MTA.
- Both materials demonstrate high overall success rates, supporting their use as effective alternatives to traditional pulpotomy agents.

Reference:
Lu KY-F, Gibbs JL, Wu C-Y, et al. Efficacy of Biodentine versus mineral trioxide aggregate in pulpotomy for primary teeth: a systematic review and meta-analysis of randomized controlled trials. J Evid-Based Dent Pract. 2025;102191. https://doi.org/10.1016/j.jebdp.2025.102191

5. Surgical management of peri-implantitis

Field: Dental implantology / Periodontology / Oral Surgery
Methodology: A Narrative Review
Clinical and Practical Significance:
- Due to the limited success of non-surgical treatment, surgical approach offering direct access to contaminated implant surfaces is necessary.
- Reconstructive peri-implantitis therapy is effective in resolving peri-implant soft tissue inflammation and achieving radiographic fill of the bone defect in 33.3% to 78.3% of implant cases.
- Disease recurrence requiring retreatment or progressive bone loss leading to implant loss are potential complications.
- Defect morphology, surgical technique, and poor oral hygiene (dysbiosis) were found to be directly associated with poorer treatment outcomes.

Key focus areas, findings, and recommendations:
Indications: Implants exhibiting contained intrabony defects (i.e., 3- to 4-wall with a minimum depth of 3mm)
Selection of bone grafts: "The use of bone substitute materials with low substitution rates (i.e., xenogenic bone fillers) appears to lead to more favorable clinical outcomes than the use of autogenous bone."
Barrier membranes: Clinical evidence for use of barrier membrane above the bone filler material remains controversial.
Biologic agents: No conclusive evidence regarding the clinical benefits of adjunctive use of biologics.
Soft tissue volume augmentation: A simultaneous soft tissue volume augmentation with tissue harvested from the hard palate may be advantageous.
Healing mode: Early wound dehiscence is a common soft tissue healing complication associated with the submerged healing approach (25 sites out of 36).
Concluding remarks: Current evidence is inconclusive to support clinical guidelines regarding the benefit of adjunctive use of biologics (biomaterials) and barrier membranes.
Reference:
Ramanauskaite A, Sculean A, Cafferata EA, Schwarz F. Biomaterials for Reconstructive Treatment of Peri-Implantitis. J Periodont Res. 2025; https://doi.org/10.1111/jre.13414

6. On Cracks, fractures and split teeth

A Position Statement
Field: Endodontics
Methodology: A consensus view of and Expert Committee convened by the European Society of Endodontology
Aim: To provide clinicians with evidence-based, authoritative information on the etiology, clinical presentation, and management of cracks and fractures that typically manifest along the long axis of the crown and/or root.
Key Findings:
- **Prevalence** of cracked teeth as high as 70%; vertical root fractures in non-root filled teeth (6-37%); and vertical root fractures in root filled teeth (4-32%).
- **Etiology** is multifactorial involving occlusal interferences, tooth morphology, previous operative dentistry, excessive occlusal forces, and/or parafunctional habits.
- **Clinical features:** Pain to cold (37%), biting pain (16%), and spontaneous pain (11%)
- **Radiographic features:** Highly variable – subtle fracture line, peri radicular bone loss, periodontal ligament thickening. CBCT is not predictable in detecting cracks or fractures but may reveal subtle crestal bone loss if clinical and/or periapical radiographic assessment is inconclusive.
- **Prognosis:** reduced tooth survival associated with 5+ mm periodontal probing, radicular extension of cracks, location in the arch (terminal tooth), pre-operative presence of apical periodontitis, and presence or placement of an intracanal post.

Endodontic intervention:
Key recommendations:
- **Timely identification** of susceptible teeth and appropriate preventive management (endodontic and restorative) are essential to increase tooth survival.
- Fabrication of **occlusal stabilization** splints should be considered for the management of parafunctional habits.
- Elimination of **occlusal interferences** and reduction of excessive occlusal loading should be managed appropriately.
- **Cuspal coverage** restoration of vital as well as endodontically treated teeth to increase tooth longevity.
- Timely extraction should be considered to minimize development of acute symptoms and to limit bone loss.
- **Periodic monitoring** is essential for detecting early signs of peri-radicular bone loss.

Reference:
Patel S, Teng P-H, Liao W-C, et al. Position statement on longitudinal cracks and fractures of teeth. Int Endo J, 2025; 58: 379–390. https://doi.org/10.1111/iej.14186

[2] *Hugo Johan Kotzé, BDS (UWC) General Dental Practitioner*
Intercare Medical and Dental Centre, Tygervalley, Bellville, South Africa, 7530. Email: hugokotze17@gmail.com