Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by **Paul Hellyer**.

Increase in incidence of oral cancer over 25 years

Shelton J, Zotow E, Smith L *et al*. 25 year trends in cancer incidence and mortality among adults aged 35-69 years in the UK, 1993-2018: retrospective secondary analysis. *BMJ* 2024; DOI: 10.1136/bmj-2023-076962.

The effect of COVID-19 on the incidence of oral cancer is unknown. Although the numbers of reported cancer cases rose by around 50% over the past 25 years, cancer mortality has reduced by about one-third in both sexes, reflecting the success of prevention programmes (eg smoking cessation), early detection (eg breast screening), improved diagnostic tests and more effective treatment.

The decrease in mortality was reported across most cancer types (n = 23), apart from liver, uterine and oral cancers which all showed increases. Of the four cancers which showed substantial increase in incidence (oral, liver, skin and kidney), all have strong associations with established risk factors. In the case of oral cancer, these include alcohol consumption, smoking and human papillomavirus (HPV), of which smoking accounts for 13% of cases and alcohol consumption 33%. The rise in incidence of oral cancer may have been greater if the reduction in smoking prevalence had not occurred.

This analysis provides a benchmark for the next decade, which will include the impact of COVID-19 on cancer incidence and outcomes.

https://doi.org/10.1038/s41415-024-7293-z

Cracks – monitor or treat?

Zhang S, Xu Y, Ma Y, Zhao W, Jin X, Fu B. The treatment outcomes of cracked teeth: A systematic review and meta-analysis. *J Dent* 2024; **142:** 104843.

Root-filled teeth should receive a full coverage coronal restoration. Cracked teeth (CT) typically (but not exclusively) manifest in the lower molars of patients aged 45–60 and may exhibit symptoms of sensitivity to cold and to pressure. Treatment options include monitoring only, direct and indirect restorations, root canal treatment and extraction. This review of 27 relevant papers analysed the clinical outcomes of different protocols.

CT with vital pulp, restored with direct restorations, showed tooth survival rates of over 90% after three years. Pulp survival rate fell to around 80% over two and three years. Survival rates for vital teeth restored with full coronal coverage, and pulp survival rate, fell to below 90% after three years. The risk of pulpal complications or extraction increased with direct restorations without cuspal coverage. CT after endodontic treatment without a full crown restoration were 11 times more likely to be extracted than those with a full coverage restoration.

The authors conclude that monitoring CT in the absence of symptoms may be a viable option, that direct restorations without cuspal coverage increase the risk of pulpal complications, and that full coverage is essential after root canal treatment.

https://doi.org/10.1038/s41415-024-7295-x

AI chatbots compared

Azadi A, Gorjinejad F, Mohammad-Rahimi H, Tabrizi R, Alam M, Golkar M. Evaluation of AI-generated Responses by Different Artificial Intelligence Chatbots to the Clinical Decision-Making Case-Based Questions in Oral and Maxillofacial Surgery. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2024; DOI: 10.1016/j.oooo.2024.02.018.

Response is better to open-ended questions.
Artificial intelligence (AI) has been used by dental professionals to decrease workload, in patient education and consent and to enhance diagnosis and decision making. ChatGPT has been studied most frequently for its use and reliability. There have been no previous studies which have compared different systems.

In this study, GPT-3.5, GPT-4, Claude-Instant, Google Bard and Microsoft Bing were set an OMFS case-based questionnaire (50 questions) requiring open-ended (OEQ) and multiple-choice (MCQ) responses. Responses were compared to those of three OMFS consultants. For the MCQs, Bing showed the weakest response with only 26% correct answers. The others scored around 36% correct. For OEQ, all showed median scores of 4 or 5 for quality, as assessed by the question setters (where 1 = poor quality of little use and 5 = excellent quality and very useful for clinicians).

MCQs force the systems to make a 'right' or 'wrong' decision, with no opportunity for reasoning. Queries to AI should be worded in such a way as to not limit their options for response. The authors conclude that the 'technology cannot yet be trusted in the clinical scenario.'

https://doi.org/10.1038/s41415-024-7294-y

CPR training

Kishimoto N, Ujita T, Tran S D, Sanuki T, Seo K. Simulation training for medical emergencies: Evaluation of dentists' long-term learning skills and confidence. *Eur J Dent Educ* 2024; DOI: 10.1111/eje.12996.

Repeating training every three months may improve patient safety.
All dental professionals should be confident and competent to manage medical emergencies in the workplace. Simulation training has been shown to improve knowledge and skills but life-like computerised mannequins (robot patients) which reproduce a realistic environment for training are expensive. Using an inexpensive vital signs simulation app (SimMon; Castle Andersen Apps) in combination with a standard mannequin, 38 participants were trained to diagnose and treat medical emergencies.

Recall checklist scores were compared immediately post-training and at 3, 6 and 12 months. Post-training, most scores were 100% but within three months, scores declined and continued to do so to the 12-month reassessment. Although the number of participants was small, the authors suggest that repeating such training every three months should ensure greater patient safety.

https://doi.org/10.1038/s41415-024-7296-9