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.**

Antibiotic resistance is a global health problem

Thompson W, McEachan R, Pavit S *et al.* Clinician and Patient Factors Influencing Treatment Decisions: Ethnographic Study of Antibiotic Prescribing and Operative Procedures in Out-Of-Hours and General Dental Practices. *Antibiotics* 2020; DOI:10.3390/antibiotics9090575.

Prescription in dental practice observed.
Observation of 76 appointments and 28 follow up interviews with dentists, patients and dental nurses were carried out. Appointments which entailed an antibiotic prescription lasted up to 15 minutes. Appointments which involved a dental procedure lasted up to one hour.

Factors which influenced prescribing behaviour (n = 31) were categorised as capability (eg awareness, guidelines, habits, skills), motivational (eg beliefs, financial burden, risk perception, patient safety) and opportunistic (eg competing demands, patient and peer influence). Previously unreported concerns of dentists included the lifetime impact of, for instance, extraction in an emergency, the stress of running late, concern for patient safety and an inability to follow up treatment efficacy.

Patient factors (n = 19) influencing treatment decisions included costs, their antibiotic beliefs, delaying tactics, the views of peer groups and their feelings about dentistry.

The reasons for prescribing antibiotics in an emergency, rather than carrying out an operative procedure, are multifaceted.

https://doi.org/10.1038/s41415-020-2231-1

The diagnosis of active root caries is difficult

Yang V, Zhu Y, Curtis D *et al.* Thermal Imaging of Root Caries In Vivo. *J Dent Res* 2020; DOI: 10.1177/0022034520951157.

New technology may measure the extent of remineralisation of root caries lesions.
The diagnosis of active root caries is subjective, depending on judgements of colour, texture, appearance, cavitation and proximity to the gingival margin. No reliable relationship between appearance and activity has been identified. Radiography is also unreliable.

The heat of vaporisation from a tooth surface can be measured by thermal imaging systems. Water retention in dentine increases with demineralisation. The heat of vaporisation of water from the tooth surface produces a large drop in temperature, which differs between sound or remineralised dentine and actively carious dentine. In this study, the mean loss of heat from 30 lesions diagnosed clinically as active was four times greater than sound dentine or arrested lesions. The technology is 'cheap' (not defined) and the temperature changes can be monitored in real time at the chairside. In future, it may be possible to measure the effects of remineralisation interventions on individual lesions.

https://doi.org/ 10.1038/s41415-020-2233-z

GDPs respond to remuneration system

Hill H, Howarth E, Walsh T, Tickle M, Birch S, Brocklehurst P. The impact of changing provider remuneration on clinical activity and quality of care: Evaluation of a pilot NHS contract in Northern Ireland. *Community Dent Oral Epidemiol* 2020; **48:** 395–401.

Treatment volumes reduce under a capitation scheme.
An NHS capitation-based payment system was piloted in Northern Ireland in 2015/16, replacing the existing fee-for-service (FFS) system for one year in 11 practices. During the trial period patient registrations increased in the pilot practices. Pilot practices showed significant reduced treatment activity, including preventive interventions, against control practices. On reversion to FFS after the year, however, treatment activity increased again.

Comparing clinical activity as if FFS had continued throughout the study period, income would have reduced by around £5,000 per month in the pilot practices but returned to pre-baseline levels of income on reversion to FFS. Patients noted longer wait times for a check-up and fewer radiographs in the pilot practices.

Whilst reduced clinical activity is not necessarily a bad thing, a longer period of capitation may show smaller differences in treatment volumes, due to patients' ongoing needs and expectations.

https://doi.org/ 10.1038/s41415-020-2232-0

NiTi rotary systems compared

Martins J N R, Silva E J, Marques D *et al.* Influence of Kinematics on the Cyclic Fatigue Resistance of Replicalike and Original Brand Rotary Instruments. *J Endod* 2020; **8:** 1136–1143.

Well known brands tested against look-a-likes.
Instrument separation is a major concern during root canal preparation with rotary NiTi instruments. Stress caused by excessive torsion and cyclical fatigue in curved canals are likely causes. Manufacturers are now staring to produce systems (termed replicalike systems in this paper), similar to the originals produced by well known companies, but which are commonly cheaper.

The results showed that all systems had a significantly higher time to separation in reciprocating mode than in continuous rotation. The replicalike systems also showed a significantly longer time to separation than the original instruments, in both reciprocation and continuous rotation. There was no significant difference between the sizes of the fractured segments. Using energy dispersive spectroscopy, all tested instruments showed an identical ratio between nickel and titanium.

However, there are no international standards to guide the production of, and impose standards on, manufacture of NiTi instruments. Therefore, clinicians may be unaware of the potential risks taken in using replicalike systems.

https://doi.org/ 10.1038/s41415-020-2234-y