COMMENT

Letters to the editor

Send your letters to the Editor, *British Dental Journal*, 64 Wimpole Street, London, W1G 8YS. Email bdj@bda.org. Priority will be given to letters less than 500 words long. Authors must sign the letter, which may be edited for reasons of space.

NHS dentistry

Recruitment and retention

Sir, within NHS dentistry, there is general national concern about the recruitment and retention of dental professionals. NHS dental practices are struggling to fill core clinical vacancies¹ which in consequence leaves an unacceptable number of patients unable to access routine NHS dental services.² There are access problems across every English region, however, these issues are amplified in rural or isolated areas such as Cornwall, Derbyshire, Lincolnshire and Norfolk² where patients face increased difficulty and travel even longer distances due to a shortage of dentists in the region.

East Anglia's Local Dental Network has made it a priority to improve recruitment and retention issues within its region, and one of the innovative ways we aim to achieve this, albeit with a long-term outlook, is by raising awareness of our profession at a 'grass roots level'. We aim to utilise dental foundation trainees (DFTs) and other dental professionals to connect with local schools and colleges via the 'Inspiring the Future'³ platform.

This platform enables dentists and other professionals to deliver presentations on their job role and highlight the many benefits as well as the fantastic opportunities within our amazing profession. Volunteers simply sign up online, create a profile, await an invitation, and reply to the school or educational establishment of their choice within their postcode.

By reaching out to local institutions in this manner, we hope that in the future, there will be a rise in the number of dentists that have grown up within the region, who in turn may be more likely to return to their roots in the area following completion of their training. Thus, this programme may assist in providing a solution over the long term to the recruitment and retention crisis this region has been experiencing, alongside other initiatives.

We feel that this would present a good opportunity for our profession to have interpersonal contact with the younger generation – which arguably ought to happen more often – and would be a good way for dentists to develop presentation, communication and networking skills.

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2. British Dental Association. 1 million new patients unable to access NHS dentistry, as recruitment and retention crisis mounts. 2 February 2019. Available at: <https://bda.org/news-centre/press-releases/Pages/1-million-new-patients-unable-to-access-NHS-dentistry.aspx> (accessed November 2019).
3. Education and Employers. Inspiring the future. <https://www.inspiringthefuture.org/>. <https://doi.org/10.1038/s41415-020-1204-8>

Dental technology

Let's CAD/CAM

Sir, we are fourth year dental students writing to you regarding the use of novel dental technologies to enhance dental teaching across the UK. The use of computer aided design and computer aided manufacturing (CAD-CAM) in general practice has increased considerably over the last decade, consistent with its technological progress. Personally, we were introduced to CAD-CAM at an early stage in our training, but it has come to our attention that companies such as Dentsply Sirona only visit some dental schools.

In our experience, they offered a complete interactive demonstration of CAD-CAM equipment, including how to use it. This demonstration was supplemented by a 'mini' competition whereby students prepared a tooth for a full gold crown and the student with the best preparation has the crown

milled by the CAD-CAM. Not only was this enjoyable for students, it also gave the class an opportunity to see the milling process live. This consolidated our knowledge of the CAD-CAM process. We were also able to appreciate the value of CAD-CAM as an effective tool in multidisciplinary management of a patient. It was intriguing to read a recent article by Antov and colleagues regarding the use of CAD/CAM technology in the management of toothwear.¹ It really highlighted how advances in dental technology can improve patient comfort and experience as well as incorporating the key principles of minimal interventional dentistry, consistent with the teaching we receive in restorative dentistry, and we strongly believe that we have benefitted from this experience.

Having been exposed to CAD-CAM and becoming familiar with it, we have gained a considerable amount of knowledge and confidence to be able to use it in future treatment of our own patients. Ultimately, we feel that this approach should be implemented across dental schools to enhance student learning and assist in providing clinical excellence translating to optimal patient care.

A. Mahmud, P. Patel, London, UK

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Oral microbiology

Breaking bad bugs with drugs

Sir, entering the third decade of the millennium, despite a drop in quinolone and cephalosporin use in the UK, 531.2 tonnes of antibiotics are consumed annually, dentists prescribing 5–7% (c.31.5 tonnes);^{1,2} the seventh most frequent is metronidazole (c.10.4 tonnes).³

Metronidazole is effective against anaerobes; it is a lipophilic first order pharmacokinetic drug with Type 1 pharmacodynamics. As tissue concentration increases with dose, a prolonged bactericidal effect is achieved through metabolic breakage of bacterial DNA. Protein binding is low and bioavailability high, with 60% excreted as active faecal metabolites while 20% remains unchanged in urine.⁴

Metronidazole resistance has been reported, and its use in dentistry now questioned, as oro-facial infections are polymicrobial containing facultative anaerobes, strict anaerobes and aerobes. Treatment should begin not with a medical intervention but with a surgical correction: incision and drainage, penicillin or amoxicillin before metronidazole.

In the wake of bacterial resistance comes an advent of antibiotic stewardship. Public Health England (PHE 2016–2019) recommends increasing metronidazole from 200 mg to 400 mg (tds/5 days). PHE cites scientific research modelled on *Bacteroides fragilis* (a ubiquitous GI tract commensal) and *Trichomonas vaginalis* (restricted to the GU tract). However, PHE also cites a wealth of clinical evidence demonstrating the efficacy of metronidazole at lower doses of 200 mg.⁵

Reconciling the pharmacology of metronidazole with clinical science is complex, as *Tr. vaginalis* never occurs orally, while experimentally *B. fragilis*, displaying mutualism, only becomes pathogenic, if displaced or disrupted, following trauma or high antibiotic doses. Its resistance genes (nim A-F) being expressed like pack rats, shuffling, escaping and then clearing commensals from the GI tract, altering immune defences and metabolic controls allowing pathogens such as *Clostridium difficile* to thrive.

The researchers upon whose data the PHE depend now lend caution to their difficulty and impossibility in correlating *in vitro* susceptibility with clinical bacteriological responses.⁴

The 2019 PHE guidelines from clinical knowledge summaries are not mandatory and they encourage:

1. Professional judgement involving patients in management decisions
2. Therapy being optimised for individual patients
3. A lower threshold for antibiotics in patients with co-morbidities

4. Prevention of antibiotic over-dose and over-use
5. Minimising resistance on all levels: Our failure in the face of a tenacious enemy adapting with impenetrable defences could result in a metronidazole moratorium, but not before tonnes of wasted antibiotics have created resistant pathogens destroying the limbs and lives of our patients. Antibiotic stewardship goes beyond blind prescribing; it demands an adaptive response, exceeding our enemy with leadership from many clinically active specialist oral microbiologists. Until then we are grateful for the opportunity to share our concerns, working within the PHE guidelines.

J. Laszlo, A. Azher Anwer, London, UK

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Antibiotics in India

Sir, antibiotic abuse in India has raised the issue of resistant bacterial strains.^{1,2}

Antibiotics are a virtual part of our routine diet because poultry and cattle are injected with antibiotics and steroids to enhance growth and keep them healthy.^{3,4} I believe this is a greater cause of bacterial resistance.

In routine dental practice, antibiotic use is common and widespread. Routine cases of exodontia, deep scaling and minor surgical procedures are done under antibiotic cover to prevent secondary infections of the surgical site. The post extraction instruction list of

dental undergraduate trainees includes a five-day course of amoxicillin for all cases. Strict adherence to sterilisation protocols can, however, reduce the need for antibiotics.

Lack of optimal sterilisation, poor fumigation of dental operatories and pollution are other reasons for routine antibiotic use. *Staph aureus* and the infamous superbug named after New Delhi (*New Delhi metallo-beta-lactamase-1*) also give us a sneak peek on how infection prone our healthcare centres are.⁵ The atmosphere is suspended with bacteria like *tubercle bacilli* and *pseudomonas aeruginosa* owing to population density and tropical climate. One should also not ignore the rampant use of antibiotics like amoxicillin due to their 'over the counter' availability. The layman with the local pharmacist's advice, due to poor understanding of the doctor's prescription or resorting to self-medication, tends to not complete the prescribed antibiotic regimen, which causes antibiotic resistance. Minimum inhibitory concentration of drugs (difficult to detect) is on the rise, and therefore is an alarming trend. The extent of antibiotic abuse is very high in India and antibiotic stewardship programmes should be actively developed to improve the situation.

J. George, Lucknow, India

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Paediatric dentistry

Sedation evidence

Sir, through your pages can I ask what is the evidence for the latest guidelines on paediatric sedation for dentistry? Or is this another example of 'evidence based' only applying to dentists in practice?

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