

Figure 7.

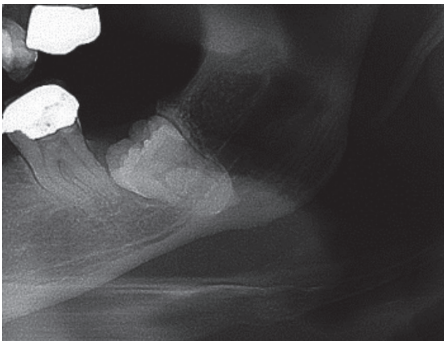


Figure 8.

of the lesion; however, for these two cases the conservative 'watch and wait' approach meant that the patients avoided surgery with the very real risk of inferior dental nerve injury.

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Inhalation sedation for oral surgery

I recently read with keen interest the article 'Using inhalation sedation for oral surgery' in the January 2024 issue of *Dental Update* (Vol. 51, No. 1), authored by Charlotte Richards and Carole Boyle. The piece effectively highlighted the broad applicability of inhalation sedation, spanning various patient groups, including paediatric, adult, special needs, and those with medical complications. Despite its informative content, I noted certain aspects that possibly merit a more thorough exploration, particularly where the content may perpetuate a few misconceptions.

First, the editorial describes the sedation equipment as 'bulky', a term I find to be somewhat misleading. The

average sedation flowmeter, for instance, is quite compact. Mounted on a four-cylinder stand, it adjusts between 40" and 53" in height with a base of just 20". While earlier models, such as the McKesson Mc1 and Accutron Newport were larger, they are being phased out in favour of more space-efficient designs. A four-cylinder stand-mounted flowmeter typically fits comfortably within the confines of a standard dental surgery set up and is easily storable.

The cost of inhalation sedation is another point of discussion. A standard sedation package begins slightly above £5000, not an insignificant amount, but certainly cost effective when compared to alternative options. This figure can include; installation, commissioning, and necessary training and CPD. When juxtaposed with the costs of operating theatre use or hiring an anaesthetist, inhalation sedation appears more reasonable, even when considering the operating expenses of medical gases, staff training and maintenance.

When reviewing maintenance, the upkeep of sedation equipment is relatively modest. Most flowmeters require annual maintenance, termed 'field service level'. The cost for servicing an Analogue MDM, for example, is under £200, including an on-site visit. Digital models might incur slightly higher costs owing to the need for annually calibrated maintenance equipment.

The environmental impact of nitrous oxide is a current and valid concern, one that is being addressed through ongoing research, including the development of nitrous oxide destructors for specific dental use. While I refrain from elaborating further, it is crucial to maintain a balanced perspective on this issue.

Staff exposure to nitrous oxide, as discussed in my 2011 paper printed in *Scottish Dental Magazine*, 'Nitrous oxide scavenging in the 21st century', has seen notable progress in terms of awareness and technology, especially in active dental scavenging systems. Modern equipment, when used correctly, has significantly reduced nitrous oxide exposure levels for staff, a fact supported by monitoring data.

Lastly, while the popularity of inhalation sedation popularity continues to grow, there are challenges to address. One such challenge is the outdated guidance in documents such as

HTM 02-01, particularly in the context of dental requirements. This document, issued in 2006, lacks comprehensive guidance for modern gaseous sedation practices.

In conclusion, inhalation sedation remains a vital and safe tool in dental practice. Despite concerns about environmental impact, which are likely to be addressed with advancing technology, its effectiveness and safety over the past six decades are undeniable.

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Protecting your oral health: the risks of tobacco use and DIY dentistry

The United Nations' Sustainable Development Goals target healthy lives and wellbeing for all, at all ages by 2030.¹ Close to 3.5 billion people worldwide are affected by oral diseases; however, oral health is an integral part of overall health.^{2,3} Factors such as minimal access to dental services, poor doctor:patient ratio, burden of care, heterogeneous distribution of service providers, low oral health literacy rate, old beliefs can result in poor oral health^{4,5} and different attitudes towards oral healthcare in various rural and urban regions.

The information technology boom has resulted in much freely available, but unverified information, which may lead to potential risk and irreversible damage, when applied practically. People indulge in DIY methods to save on costs, often ignoring the potential for irreversible damage.

Tobacco consumption prevalence has breached 22% globally, with 28% in urban India and 42% in rural India.^{6,7} With much land suitable for farming in India, agriculture is a dominant sector, employing 45 million people.⁸ Tobacco is a short-duration, drought-tolerant cash crop that can be grown on soils where other crops cannot be cultivated profitably. Low production costs and high export market value makes its production feasible. India is a global leader in tobacco production and derives 1.1% of its GDP from it.

However, tobacco has serious ill effects on general and oral health,



Figure 1. Upper anterior teeth showing discolouration, loss of enamel structures and tooth fracture.



Figure 2. Lower anterior teeth showing attrition, cervical abrasion and discolouration.



Figure 3. Lower right posterior teeth showing cervical abrasion and attrition.

including cancer, heart diseases, oral cancer, gingival keratosis, and accounts for 8 million deaths across the globe, and 1.35 million deaths in India every year.⁹

In the past, tobacco was extensively chewed/smoked and people were unaware of the health complications. Although this cannot be said now, a huge global advertising budget combined with a lack of literacy and health awareness has resulted in the continuation of the habit, leading to serious dental issues, including sensitivity, staining, surface damage and erosion.

Consumption of noxious substances causes dental problems, such as tooth staining, halitosis, enamel erosion and inflammation of periodontal tissues, along with a financial burden for treatment. Fearing reprimand from parents and guardian, and the additional monetary burden for professional treatment, the adolescent consumer often resorts to home approaches to obscure the habit.

A UK survey found that 34% of 16–24 year olds resorted to DIY dentistry because of lack of access to dental care.¹⁰ The emergence of the COVID-19 pandemic further restricted access to professionals

and expanded the scope of DIY dentistry. Methods included a mixture of baking soda and hydrogen peroxide, coconut oil pulling, apple cider vinegar, lemon and orange peels, charcoal, and scraping the tooth surface with sharp instruments. These methods can trigger undesired reactions within dental tissues, including surface alterations of enamel and a reduction in thickness, as illustrated in Figures 1–3. In this case, the patient resorted to using a knife to remove tobacco stains, inadvertently causing the damage. The teeth became more prone to sensitivity, caries and developed a yellowish tinge because dentine was exposed owing to the loss of enamel.

In India, the government actively promotes awareness about the ill effects of tobacco use and there are also help to quit programmes. The National Tobacco Control Program is being conducted at national, state and district levels,¹¹ with a focus on literacy promotion, emphasis on oral and systemic health, and regular check-ups. The government is sponsoring pictorial warnings and advertisements, and increasing taxes and vigilance to prevent exposure of tobacco to minors. It has been found that a tax increase that increases tobacco prices by 10%, decreases tobacco consumption by approximately 4% in high-income countries, and by about 5% in low- and middle-income countries.⁶

World No Tobacco Day, implemented by the WHO on 31st May 1987, and celebrated every year since, raises awareness of the ill effects of tobacco use. The WHO implemented MPOWER measures to control tobacco use in 2007, including monitoring its use and prevention policies, offering help to quit, and enforcing bans on tobacco advertising, promotion and sponsorship, and by raising taxes on tobacco products.¹²

Dental health professionals should also actively participate in tobacco cessation programmes and activities, with counselling for every patient. FDA-approved substances, such as nicotine patches, chewing gums, sprays and inhalers, and drugs such as varenicline tartrate and bupropion hydrochloride, must be promoted to help patients quit tobacco habits. Early detection of lesions and appropriate action is required to prevent lesions from progressing. Awareness of oral health and dental treatment services, at all levels, should be improved to ensure access for all. Adequate resource allocation, provision of professional dental care in

rural areas and improving awareness about dental hygiene and its importance is also key to minimizing the risks associated with DIY dental care.

References

1. United Nations Department of Economic and Social Affairs. Goal 3. Ensure healthy lives and promote well-being for all at all ages. Available at: <https://sdgs.un.org/goals/goal3> (accessed June 2024).
2. WHO. Global oral health status report: towards universal health coverage for oral health by 2030. 2022. Available at: www.who.int/publications/i/item/9789240061484 (accessed June 2024).
3. Seymour GJ. Good oral health is essential for good general health: the oral-systemic connection. *Clin Microbiol Infect* 2007; **13**: 1–2.
4. Sukhabogi JR, Doshi D, Vadlamani M, Rahul V. Association of oral health literacy with oral health behavior and oral health outcomes among adult dental patients. *Indian J Dent Res* 2020; **31**: 835–839. https://doi.org/10.4103/ijdr.IJDR_337_19
5. D'Cruz AM, Shankar Aradhya MR. Health literacy among Indian adults seeking dental care. *Dent Res J (Isfahan)* 2013; **10**: 20–24. <https://doi.org/10.4103/1735-3327.111760>
6. WHO. Tobacco. 2023. Available at: www.who.int/news-room/fact-sheets/detail/tobacco (accessed June 2024).
7. Ministry of Health and Family Welfare, Government of India. National family health survey 5 2019–2021. Available at: https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf (accessed June 2024)/
8. Department of Agriculture and Farmers Welfare. Annual reports 2022–2023. Available at: www.agriwelfare.gov.in/en/Annual (accessed June 2024).
9. WHO. Tobacco. Available at: www.who.int/india/health-topics/tobacco (accessed June 2024).
10. Over a third of Gen Z would resort to 'DIY' dentistry. *Br Dent J* 2023; **234**: 477.
11. Ministry of Health and Family Welfare, Government of India. National Tobacco Control Program. Available at: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=1052&lid=607> (accessed June 2024).
12. WHO. WHO report on the global tobacco epidemic, 2008: the MPOWER package. Available at: <https://iris.who.int/handle/10665/43818> (accessed June 2024).

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