

BY MARJAN ELYASSI

CLIMATE CHANGE AND DENTISTRY

Climate change and its potential impact on the Earth, and on human health, is a priority for the Conference of the Parties (COP). COP meets annually and the nations work together to agree commitments and provide solutions to address global climate change. As dental care professionals we have a role to play in practising sustainable dentistry, wherever possible, reducing our carbon footprint, and that of our patients, and helping to lower greenhouse gas emissions.

Sustainable dentistry

The National Health Service (NHS) has announced its vision to enable a net zero NHS by 2040 and aims to achieve an 80% reduction in emissions directly under NHS control by 2032. Many private practitioners have also expressed interest in reducing emissions.^{1,2}

During the COVID-19 pandemic, there was an exponential increase in the use of PPE and single-use products. Vast amounts of plastic are now discarded annually, with a negative impact on the environment. Face masks and dental materials, such as amalgams and chemicals, pose a threat to both life on land and in the ocean. According to reports, billions of discarded face masks have entered the oceans since the outbreak of the pandemic.^{3,4,5}

NHS dental services account for 3% of the overall carbon footprint of the NHS, primarily due to emissions related to decontamination, waste disposal and the use of single-use plastics. Although the use of single-use plastics has decreased in recent years, it remains high. Annual production of plastics increased nearly 230-fold to 460 million tonnes in 2019.⁶

Behavioural changes are another long-term solution towards sustainable dentistry and the healthcare system. Although the long-term benefits of physical activity, a balanced diet, and abstaining from smoking are well-known, failures to practice healthy behaviours account for illness and pressure on the NHS and its resources. The links between diabetes and periodontal diseases are well established.⁷

Pollution

According to World Health Organisation reports, pollution

increases the risk of pulmonary and cardiovascular diseases.⁸ Air pollution particles are already known to enter our bodies, damaging organs and causing deaths every year.⁹ Reducing the amount of plastic in dentistry not only helps mitigate health risks associated with pollution but also enables the development of innovative new modalities that are independent of plastic products.

Dental companies are attempting to address the issue of sustainability with their products: bamboo replaces plastic as a material of choice for some brushes and interdental brushes. We now have the opportunity to buy recyclable manual and electric toothbrushes. Purchasing from local dental suppliers, rather than those on the continent, is also a good option. Asking dental suppliers about their green energy initiatives, including the use of renewable energy and recycling practices, helps encourage and enhance our understanding of sustainable dentistry.

It is important to establish a 'green policy' across NHS and private dental practices and hospitals, so that everyone is informed. Some corporates, like Bupa, have already started implementing Green Plans and have a practical approach towards sustainable dentistry, such as applying quality recycling bins at work, hosting webinars and seminars related to sustainable dentistry, and encouraging staff to cycle to work by providing concessions on bike purchases.

Sustainable dentistry also involves replacing conventional materials with environmentally friendly ones such as: replacing amalgam with composite; traditional X-ray machines with digital X-ray machines. Consolidating treatment and limiting the number of appointments a patient needs reduces travel.

Dental suppliers and NGOs related to clinical products previously had a responsibility, in response to the Climate Change Act 2008, to reduce greenhouse gas emissions to meet Net Zero Emissions by 2023. The companies worked together to implement the UK Climate Change Act 2024 across the whole of the UK, despite the four nations being devolved.

In summary

Making an impact is challenging. However, wherever you are employed, at work and at home, we can, for example:

- Replace plastic products with non-plastic alternatives, or invest in biodegradable plastics and recycle them.
- Reduce energy and water usage.
- Encourage the use of public transport and car sharing.

- Reduce our consumption of meat. According to the NHS England Eatwell Guide, a healthy diet should include a higher proportion of vegetables, fibre, legumes, and wholegrains, alongside unsaturated fats and oils from nuts, healthy oils, and lower-fat spreads.

Advice relating to lifestyle habits such as smoking, and alcohol intake can be massively impactful in reducing an individual's environmental footprint when considering their consequences relating to mouth cancers, periodontal diseases and delayed healing post-surgery.

It is undeniable that climate change is real and that ambitious plans are in place to reduce the world's emissions. Finding a replacement for plastic will be a major breakthrough. Seeking renewable natural resources of energy i.e. solar, wind, hydroelectric and biomass should be implemented as a common resource of energy and aim to comply with recycling programmes across NHS panels. In dentistry, a shift towards bamboo products is already underway as a replacement for plastic materials and companies and suppliers should receive subsidies for purchasing non-plastic products for both private and mixed practices. As a dental care professional, we must recommend that our patients and colleagues consume fewer plastic products, use bamboo brushes and interdental brushes instead, advise about the Eatwell Plate, and recommend regular dental check-ups and hygiene sessions to the practice as preventive measures.

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