



Dentistry and the environment



DCPs could use their excellent communication skills to promote sustainable living to patients, says reader panellist **Dominika Jaslikowska**.¹

It is inevitable that high levels of carbon dioxide emissions around the world are leading to global warming; however, it is positive that more dental care professionals (DCPs) are becoming aware of the detrimental effects that dentistry can have on the environment.

What does global warming mean?

Global warming refers to the rise in global temperature due to greenhouse gases (GHG)

Author information

¹Dominika is a former dental nurse and biomedical science graduate now studying dental hygiene and therapy at Sheffield University.

in the atmosphere; this results mainly from human activities. Global warming then leads to an increase in extreme weather events such as heatwaves, fires, droughts, floods, cyclones and storms. All of these not only affect humans and animals directly but also have a negative impact on food production.

The World Health Organisation estimate that between the years of 2030 and 2050 an additional 250,000 deaths per year will occur due to climate change, driven by the excess amounts of carbon dioxide in the atmosphere. A lot of these deaths will be as a result of heat exposure in elderly people and malnutrition in children. Air pollution is also linked to conditions such as heart disease, lung cancer and even stroke which contributes to around 36,000 deaths each year in the UK. The current pace of the global temperature rise puts approximately half of all plants and animals at risk of extinction.^{1,2}

How much does dentistry contribute to greenhouse emissions?

A document which was published by Public Health England (PHE) looked at NHS dental services and how much emissions are being generated.³ They found that simple dental examinations accounted for the highest proportion of dentistry's carbon footprint (27%), followed by the products and services dental clinics purchase. However, from the emissions perspective 64% related to travel, both by staff and patients. Dental professionals should be encouraged to use public transport or ride a bike to work where possible but also promote these forms of transport to patients.

From an operating general dental practice point of view, the inappropriate segregation of waste leads to non-clinical waste being disposed of in the clinical waste thus, producing excessive amount of GHG

emissions through the incineration process. It is important to note that items which are not contaminated such as paper towels after we wash our hands and even instrument pouches should end up in the general waste. On the whole the most frequent item found in the clinical waste is disinfectant wipes which are used for the infection control process in between patients.⁴

While working as a dental nurse a few years ago, I came across a practice in which E-Cloth Professional microfibre cloths were used instead of disinfectant wipes. They were used just with water, no chemicals required, and autoclaved once used on ten patients. This practice was essentially generating minimal amounts of waste each day, which led me to think about how effective this chemical-free cloth is and whether we can use it safely.

Whilst studying BSc Biomedical Science I proposed and undertook primary research testing the microfibre cloth in question; I used a real life dental setting environment to gain more reliable results. From statistical analysis the E-Cloth Professional showed significant reduction of bacterial colonies; colony counts were significantly lower than the counts for the chemical-containing disinfectant wipes also used in the study.⁵ However, a larger sample size and longer study would provide more confidence.

How can you help?

DCPs are excellent and experienced educators; their communication skills and knowledge on how to motivate others comes naturally with the job role. It would be a shame not to use these skills in promoting sustainable living to patients and in turn help with current local and global issues.

Things to consider in our everyday life:

- Use reusable water bottles
- Compost food waste and donate food to banks
- Conserve water – turn off the tap when brushing teeth
- Use a bike/public transport as much as possible
- Recycle your waste appropriately, making sure it is not contaminated with food, so wash it out
- Swap to eco-friendly products but do your own research
- Speak up and educate people around you!

What to consider when choosing sustainable products in dentistry

There have been some great new dental products on the market this past year or so, but we have to do our own research before recommending these to patients.

- First of all, we should educate ourselves on sustainable products and try them out, making sure they will fit patients' needs and will not compromise their oral health
- Secondly, not all products that are marketed as 'sustainable' are actually environmentally friendly; we need to ask ourselves where was this product made and where is it coming from? Has it been transported into the UK via air, road? Try and use products that have been manufactured locally as the biggest threat to the environment is carbon dioxide emissions generated by transportations of goods.⁶

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- Lastly, we need to know how these products can be disposed of; some, although marketed as biodegradable, are made of nylon which makes it impossible to recycle. The nylon bristles have to be taken off with pliers before placing it into the compost waste - is this a safe option for patients? Make sure to read manufacturers' instructions as they vary for some brands, and do not be afraid to contact the company for more information.

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<https://doi.org/10.1038/s41407-021-0650-8>