

An uncomfortable truth

Sir, It's an uncomfortable truth, but many of our dental practices are bad for the planet.¹ They are defined by a pattern of consumption, from the water used for every procedure to the energy required and the waste generated. What if, in addition to ensuring healthy teeth and gums, a dental practice makes a conscious effort to heal the world beyond its walls?

Dental offices are significant consumers of water, and as such, they have a significant opportunity to address the growing lack of available water. Water conservation can be achieved through a variety of methods, including the use of water-efficient equipment, water recycling systems, and closed-loop suction systems, as well as through monitoring and tracking water usage, educating staff and patients, and using water-saving technologies.²

One way to conserve water in dental offices is by investing in water-efficient equipment. Vacuum pump technology used in dental clinics can be modified for water and energy efficiency enhancement with lower maintenance costs. Dental vacuums are critical components of a dental practice helping to remove oral fluids, debris, and bacteria. Liquid ring vacuum pumps, called wet vacuums, have been a common workhorse technology in use since the 1950s. Wet vacuums consume enormous quantity of fresh drinking to create suction, amounting to approximately 60,000 to 200,000 gallons of water a year from a single practice.³ That's enough water to fill a thousand hot tubs and still have water left over. Water usage in a clinic is not just an environmental concern but a financial money pit. With sharp increases in the cost-of-living, this steady stream of water consumption is expensive, driving up monthly electric and drainage costs, ballooning the overhead costs of a clinic.⁴

Dry vacuum pumps can generate savings for the clinic as well as help to conserve significant water resources. They use oil-free rotary vane systems engineered to create suction. Pound for pound, dry vacuum systems can support more users than a similar-sized wet vacuum with less power diffusion, showing approximately 30%

increased efficiency. Variable-speed dry vacuums further cut down on energy usage, compared to older wet vacuums, which can help to reduce the clinic's overall energy consumption and therefore lower its costs and carbon footprint.

Dry vacuum pumps are also more reliable and require less maintenance than liquid ring pumps. Most wet vacuums have legally mandated expensive backflow preventers that come with annual maintenance costs. Dry vacuums, by design, have no water flow and therefore do not require these additional pieces of equipment. As dry vacuum pumps don't use water, there is no risk of water damage or corrosion to the equipment, which can prolong the lifespan of the equipment and reduce the need for frequent repairs and replacements.

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The initial higher cost of a dry vacuum is offset by the reduced carbon footprint, environmental burden, and savings from decreased energy and running costs. Most reliable dry vacuum manufacturers offer guarantees of up to 5 years with an estimated life span of 20 years. Retrofitting a new vacuum raises space and cost concerns, but most dry vacuum systems have a similar size to water-guzzling ones, fitting into the same space. Newer dry vacuum pumps offer quieter operation, increased pressure, better performance, and require less manpower.

Dental clinics can rehabilitate water usage to reduce wastage and consumption by installing using dry vacuum pumps, eliminating the need for water to create vacuum pressure. This not only helps to conserve water but also improves energy efficiency and reduces maintenance costs of up to approximately £16,000 over five years.⁵

The climate crisis is projected to exacerbate water scarcity, cause changes

in precipitation patterns, and increase the frequency and severity of floods and droughts. These changes have the potential to disrupt water supply systems, harm aquatic ecosystems, and threaten human health and livelihoods. Therefore, water conservation is an important strategy for reducing the impacts of climate change.

Dry vacuums need to be championed as the best management practice through legislation, local ordinances, and financial incentives such as rebates. This one measure can help in planning for scarcity and reduce the risk of cities running out of water. With growing recognition of the need for water conservation, we cannot safely confine our efforts to a single action. While the switch to dry vacuums is not the sole course of action available, it is undoubtedly the most efficacious option.⁶

Raising the consciousness of dental practitioners to reduce water consumption and 'going green' now is not just optics but a matter of survival. These simple actions can collectively have a major impact on reducing water usage and the energy required to provide it. In the end, the fate of the planet may very well be decided by the bucket of water we save today.

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