Editorial

A Greener Future for Dentistry

Concerns about protecting the Earth's resources and fostering healthy environments for all of our planet's inhabitants have gathered force over the past several decades. As they have, a greener consciousness has begun to permeate dental offices worldwide. One aspect of that consciousness is a growing awareness of the burden that dental offices have placed upon the environment. The Eco-Dentistry Association, founded in 2008, estimates that US dental offices alone still throw away almost 5 million lead foils, 28 million liters of x-ray fixer, 1.7 billion sterilization pouches, and 680 million patient barriers every year. The US Environmental Protection Agency estimates that dentists generate at least 3.7 tons of mercury-containing amalgam waste annually.

At the same time, breakthroughs in dental materials, technology, and practices have opened up a greener path for those with the vision and motivation to follow it. For example, the use of digital imagery eliminates the need for toxic and expensive traditional radiographic materials. Digital impression systems are quickly turning unpleasant conventional impression techniques into an interactive three-dimensional experience for patients, reducing both treatment time and material costs. Computer-aided design/computer-assisted manufacturing systems that enable restorations to be delivered in a single visit cut patients' travel to their dental offices in half (along with the carbon emissions associated with those trips).

The most recent development in this ongoing evolution is the ability to make digital impressions of implants by merging digital scanning technology with coded implant abutments. Doing so offers far-reaching benefits, since the restorative dentist team no longer needs to select a tray, dispense impression material, allow time for material setting, disinfect the impression, package it up, and ship it to the laboratory. All the steps involved in the laboratory's master cast fabrication (the plaster pour, base and pin, die cut, trimming, and articulation) can also be eliminated. Instead, digital data from the digital impressions are sent electronically for virtual designing and milling of patient-specific implant abutments and copings.

Some of the steps toward a greener dental future involve lower-tech solutions: converting to light-emitting diode operatory lights, replacing single-use disposable patient barriers with hospital-tested reusable cloth methods, using less toxic surface disinfectants, and more.

It's hard to estimate how many dental offices currently can boast of being fully green. There is evidence that the number is nowhere near a majority. Estimates have been published that by the end of 2010, only a quarter to a third of all US dental offices had adopted the use of digital imaging tools.

But with the convergence of growing awareness, new technologies, and more environmentally sensitive protocols, surely a tipping point will soon be reached, if it hasn't been already. Dental practitioners, patients, and all the other inhabitants of the Earth will be better for it when that day comes.

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