Establishing an Eco-friendly Dental Practice: A Review

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Have dentists paused to think as to where the gloves, fixer, plastic waste, mercury waste, and X-ray films used in the clinic end up after disposal? Or considered how much water, electricity, and other resources our dental clinics use? Dentists need to take off their tinted glasses and consider the effects of their dental practice on the planet. Though individual dentists generate only small amounts of dental waste, the accumulated waste produced by the profession may have significant environmental impact. Thus the concept of “green dentistry” or “eco-friendly dentistry” has evolved. Eco-friendly dentistry is an environmentally friendly way of practicing dentistry by using techniques and equipment to reduce waste, conserve energy, decrease pollution, and reduce our carbon footprint. The incorporation of eco-friendly dentistry to the dental practice is not only effective from an environmental perspective but is cost-effective for the dentist too. If a dental practitioner is looking for a way to distinguish his clinic from the others, eco-friendly dentistry could be the answer. This article reviews the scientific literature on eco-friendly dentistry and suggests comprehensive steps to start an eco-friendly dental practice.

Keywords: Carbon footprint, Dental waste, Eco-friendly dentistry, Environmental pollution

INTRODUCTION

The concern of the environmental impact of human practices is being discussed globally since decades. According to WHO, SEARO, the 11 Southeast Asian countries together produce about 350,000 tons of health care waste per year, and close to 1000 tons a day, which is both hazardous and nonhazardous waste.¹ The dental profession also contributes to this abundant health care waste. Although individual dentists generate only small amounts of dental waste, the accumulated waste produced by the profession may have significant environmental impact.² There is a need for dentists to be environmentally conscious and take the necessary steps to make their dental practice “Eco-friendly.”

Eco-friendly dentistry is a newly evolving practice of dentistry, which encompasses a simultaneous devotion to sustainability, prevention, precaution, and a minimally invasive patient-centric, as well as global-centric treatment philosophy.³ It is also known as green dentistry or eco-dentistry. It is a budding concept in the western countries which is beneficial to the environment, the patient, clinic staff, and also to the dentist. It not only helps control the waste pollution in the dental practice but also saves water, energy, and other resources in the dental clinic.

The need of the hour for dentistry is for each dentist to rethink his every decision and action for environmental sustainability. Sustainability is the principle of meeting the needs of the present without compromising the ability of future generations to meet their own needs.⁴ Hence, it is the responsibility of every dentist to assess and monitor the impact of the dental byproducts on the environment.

To make eco-friendly dentistry a possibility, there are two main avenues for implementing change. These are: (1) Appropriate policy development and implementation; (2) dentists taking responsibility/ownership.⁵ In the absence of policies and regulations, dentists need to make an individual effort to do their part for a sustainable greener future.

A literature search revealed studies,⁶⁻⁷ which discusses the concept of green dentistry and the benefits of going green. A need was felt for more literature to highlight the steps to be undertaken for establishing an eco-friendly dental...
practice. This article reviews the scientific literature on eco-friendly dentistry and suggests comprehensive steps to start an eco-friendly dental practice.

REASONS FOR ESTABLISHING AN ECO-FRIENDLY DENTAL PRACTICE

The reasons for changing the current scenario of a dental practice into an eco-friendly dental practice are abundant, as a lot of practices followed in our clinic have a direct or an indirect detrimental effect on the environment. They can be listed as follows:

a) Infrastructure of the clinic.
b) Use of traditional radiography producing hazardous by-products like waste fixer, lead foils, etc.
c) Use of silver amalgam restorations.
d) Excessive use of disposables for infection control.
e) Use of chemical sterilization with toxic disinfectants.
f) Wastage of resources like electricity, water, paper, etc.
g) Improper disposal of bio-hazardous waste.

The list is endless and staggering. Hence, there is a need to tackle these threats to the environment by adopting sustainable green dental practices in our clinic.

STEPS TO ESTABLISH AN ECO-FRIENDLY DENTAL PRACTICE

The establishment of an eco-friendly dental practice requires a change in perceptions and keen planning. Following all the necessary changes may be a challenge to some practitioners, but making these simple changes can make a huge difference to the environment. Even if the dental practitioner cannot incorporate all the following steps into their practice, taking a few simple steps from the following list might go a long way in ensuring a greener future.

Rethink
The first step in transitioning to an eco-friendly dental practice is to re-think. Re-thinking means taking notice of the things that we do daily in our practice and asking whether there is a way to do them, that is equally effective and easier on the earth. It is a continuous process of making new choices or adopting new approaches in dentistry. Hence, every decision in our practice needs to be evaluated and necessary actions should be taken.

Designing the Dental Clinic
While designing an eco-friendly dental clinic, few things need to be addressed Flooring: Linoleum flooring should be preferred. Linoleum was invented in England in 1863 by Frederick Walton. Linoleum flooring is manufactured by oxidizing linseed oil to form a thick mixture called linoleum cement. The factors which make linoleum friendly to the environment are that; linoleum is made of sustainable, natural ingredients; it lasts a very long time; and it disposes well.

Paint: Some of the most harmful chemicals found in the paint, which is commonly used for painting clinic walls are volatile organic compounds or VOCs. VOCs are unstable, carbon-containing compounds that readily vaporize into the air. As paint dries, these harmful VOCs are released into the air at high levels. The VOC reductions made possible by technological advancements in the paint industry. Hence, use ultra-low VOC paint or zero VOC paint in clinics.

Lighting: Use compact fluorescent light bulbs in the clinic. It saves energy and have revolutionized energy-efficient lighting. Wherever possible use the natural light by making large windows a part of your clinic décor.

Choosing Appliances
Whenever choosing for electrical appliances for the clinic, look for energy saving alternatives. Use light emitting diode monitors for your desktop, as they cut energy consumption in half. Wherever possible use a laptop, which is more energy conservative. Buy appliances like air conditioning and light fixtures with occupancy sensors. Check for the energy star label of the appliances before buying. More the stars on the label means more energy conserving the appliance.

Training Your Staff
For effective working of the dental clinic, each member of the dental team needs to play their part. The dentist needs to train his staff regarding all the environmentally friendly practices the clinic has accepted to follow. It is necessary to engage the entire dental healthcare team in any going green initiative.

Learning and Adopting the Four R’s
The four R’s stand for rethink, reduce, reuse, and recycle; which need to be learnt and implemented for truly transforming your dental practice into an environment friendly one. It is one of the most important principles of eco-dentistry. The dental practice needs to make a conscious effort to rethink all the choices made toward sustainability, reduce the waste generated in the clinic, use of reusable instruments and materials and lastly to recycle. A recycling unit can be set up in the clinic. If that is cumbersome, the nearest recycling plant can be contacted for help with recycling the clinic waste.
Digital Radiography
With the use of digital X-rays, dental practices can dramatically reduce the harmful chemicals such as lead and silver from being released into the environment. Furthermore, patients are exposed to less radiation compared to traditional radiography. The added benefits are that the digital X-rays are of better quality, better accuracy, easily stored for records, and can be sent anywhere across the world.

Save Resources
The resources like energy, water, paper, etc., need to be used resourcefully. All the appliances should be switched off when not in use. Standby power or phantom load should be avoided. Low-flow aerators can be installed on all sink faucets to conserve water.

Go Paperless
Going paperless is truly a revolutionary approach. Using computers and other devices to maintain all records and digital patient communications helps not only save paper but also staff time.

Educate Your Patient
Showcase your eco-friendly practices to your patients. Educate them to adopt eco-friendly practices in their lives. Teach them to turn off the water while brushing teeth. Ninety glasses of water per day can be saved by turning off the water while brushing teeth.

Managing Amalgam Waste
Mercury is the most controversial waste produced in dentistry. There is evidence that mercury particles released from dental amalgam have harmful effects on the environment. Silver amalgam is used as a restorative material for more than 150 years; in spite of the advent of newer non-metallic materials. The most effective way of managing this situation is using amalgam sparingly. Ensuring proper handling and disposal of waste mercury is of paramount. Use amalgam separators for effectively managing this waste.

Get Registered
As a final step, you can get an ISO Certification for your clinic. You can also become a member of the Eco-dentistry Association and obtain a GreenDOC Dental Office Certification for your clinic by completing the program.

CONCLUSION
Although the effect of these practices on the planet cannot be measured, attempts should be made toward an eco-friendly approach. Dentistry is a healing profession. Hence, being a part of the profession responsible for spreading smiles, it’s time we stop overlooking sustainability and make our dental practice eco-friendly; for a greener future.

REFERENCES


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