International Scientific Journal of Engineering and Management
ISSN: 2583-6129
Volume: 03 Issue: 06 | June – 2024
DOI: 10.55041/ISJEM01944 An International Scholarly || Multidisciplinary || Open Access || Indexing in all major Database & Metadata

‘Green way of Practicing Dentistry’ for the Budding Dentists- Need of the Hour!!-A Review.

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ABSTRACT:

Global warming is the today’s biggest problem facing in the entire world. Apart from industrial, vehicular, and waste and carbon prints generating from the household, health sector also polluting the earth in different forms. No exception for dental practice, which is generating reasonable percentage of waste, in different stages of dental practice. Worldwide various organizations insisting for the reduction of environmental pollution including ADA and other Dental Authorities of all the countries. It is the duty of every dental clinician to take proper preventive measures to reduce the generation of waste in any form, from their clinics. The beginners of dental practice may follow properly the guidelines, to reduce the waste from their clinical practice. Hence this review article aimed to suggest the budding dentists how to start their clinic and also, discussed various methods to make the conventional dent al practice in to Green dental practice.

INTRODUCTION:

The fundamental ideas of eco dentistry, commonly referred to as green dental practice, include promoting "green products," conserving energy and water, using non-toxic products, cutting waste, and getting rid of dangerous pollutants that harm patients and the environment. [1] Using an eco-friendly strategy in one's work is not only a "feel good" decision; there are both direct and indirect financial benefits. Savings are evident when waste is reduced, and efficiency is raised. Furthermore, committing to sustainability shows current and potential patients that you care about the community and that you take responsibility for your actions. Many of these patients may then seek out and support green businesses. It can be scary to take the first steps towards sustainability. In light of this, the ADA has put together a list of recommendations to

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assist members in starting green practices. Even a small number of these suggestions can have a positive long-term impact on the environment and the practice.[2]

• These days, installing an amalgam separator is often required and environmentally friendly.
• Set up offices so that natural light and ventilation are maximised.
• Distribute indoor plants all over the work area.
A programmable thermostat can be installed to reduce the cost of HVAC maintenance.
• Purchase a water-free central vacuum system with an amalgam trap installed.
• Use sensor-operated faucets and low-flow faucets and fittings.
• Use only high post-consumer recycled paper products free of chlorine, as opposed to ordinary paper goods.
• Use tap water instead of bottled water.
• Encourage recycling by having recycling containers that are easily accessible and have visible labels.[2]

1. Select eco-friendly materials.

Selecting low-impact materials, including recyclable, renewable, or biodegradable materials, is a first step towards creating environmentally friendly environments. Bamboo flooring, cork wall panels, and hemp textiles are a few examples. These materials can also improve the indoor air quality and the degree of comfort in the room. Additionally, make sure the materials you choose are durable, low-maintenance, and compliant with ADA fire, slip, and dimensional stability regulations.

2. Make the most of natural light.

Natural light not only enhances the health and well-being of the occupants but also reduces energy consumption and the carbon footprint of the area. To maximise natural light, install skylights, large windows, or light shelves that reflect and disperse sunlight. However, you also need to consider heat gain, glare, and issues with privacy that arise from natural light. You can use shades, blinds, or drapes that can be adjusted to meet these issues and are accessible to people with disabilities.

3. Include verdant plants

Green plants may give vitality and beauty to a space in addition to enhancing the humidity and air quality. They can also reduce tension, fatigue, and loudness. To add greenery, utilise vertical

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gardens, hanging baskets, or potted plants. However, you also need to make sure that the plants don't obstruct the room's circulation, emergency exits, or sightlines. You should also select plants that are suitable for the climate, light, and water requirements of the area, as well as ones that don't cause allergies or irritate skin.

4. Make use of smart technology

Using smart technology, you can keep an eye on and control the environmental performance of the area, including the lighting, ventilation, temperature, and water usage. You can use sensors, thermostats, timers, or dimmers, for example, to adjust the settings based on occupancy, activity, or time of day. Making sure the technology is accessible, easy to use, and compatible with people's assistive devices is crucial. You can utilise voice-activated, touch-free, or remote-controlled devices, as well as ones that are easy to understand and operate.

5. Use the principles of universal design

Creating surroundings that anybody can use and enjoy, regardless of age, ability, or taste, is the aim of universal design. You need to consider the diversity of users, their needs, and present them a range of options to use universal design principles. For instance, you can employ tactile signs, audio warnings, contrasting colours, or adjustable furniture to accommodate people with different levels of mobility, vision, hearing, or cognitive ability. Applying universal design principles allows you to create spaces that are not only useful, aesthetically beautiful, and accessible but also good for the environment.[3]

Green dentistry is a high-tech approach that reduces the environmental effect of dental procedures and incorporates a dental care paradigm that maintains and enhances wellness. [4]

In addition to helping dentists safeguard the financial stability of their practices and the health of the planet and community, green dentistry caters to the demands of millions of patients who lead healthy lifestyles. Adoption of the EDA's green dentistry model by green dental practices, green dental patients, and green dentistry product firms together is revolutionising the dental industry. lowers pollution and waste. The amount of waste and pollution produced by a single dental office could surprise.

Other names for green dentistry include biocompatible dentistry, holistic dentistry, natural dentistry, progressive dentistry, and unusual dentistry. The four Rs—reduce, reuse, recycle, and rethink—are the fundamental ideas of green dentistry. The use of both hazardous and non-

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hazardous materials can be decreased by recycling them to make new materials or reusing them after thorough disinfection. Using substitute, less harmful, or organically extracted products in daily life can also be beneficial. [5] By adding these ideas into the academic curriculum, dental students' and practitioners' lack of awareness and knowledge of green dentistry can be improved. [6] Digitalization of patient records will reduce lot of paper waste, may lead to the conservation of natural resources. [7] Also, digital radiographs will reduce the chemical waste generation in the clinic practice and easily they can be preserved. [8]

Dentists who see more than 20 patients per week are more familiar with the idea of green dentistry. The biggest obstacle to practicing green dentistry is a lack of knowledge about the practice. [9] Programmes for continuing dental education contribute to the dissemination of knowledge and awareness of green dentistry. It will be feasible to address the lack of training and experience that dental practitioners and students have in green dentistry by incorporating these concepts into academic programmes.[10]

Green is said to be the most calming and tranquil colour and has therapeutic properties. Green has been shown to improve endurance, steadiness, and vision. This colour is associated with hope, renewal, and growth. It also denotes safety in the marketing of pharmaceuticals and medical supplies. [11] Green dentistry is a method of treating teeth that incorporates environmental preservation with dental procedures. The main ideas of a green dentistry practice are to conserve energy and water, use non-toxic products, cut down on waste, get rid of dangerous pollutants that harm patients and the environment, and support 'green' products. [1]

A green hospital is described as one that "improves patient wellbeing, aids in the curative process, while utilising natural resources in an efficient, environment-friendly manner," according to the Indian Green Building Council, which was recognised by the US Green Building Council. [12]

Building design that prioritises adequate lighting, improving indoor air quality, minimising environmentally harmful waste production through reduction or recycling, lowering pollution, and conserving natural energy resources are all part of the "green hospital" concept.[13]

THE FOUR ‘R’ CONCEPT

There are many strategies to lessen the harmful effects that common products and treatment materials have on the environment. Dental clinics and workplaces can adopt eco-friendly

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practices. The **4R model**—Rethink, Reduce, Reuse, and Recycle—is the foundation of green dentistry, often known as eco-friendly dentistry, which combines dental care with environmental preservation. [1,14]

The four R's emphasize sustainable consumption habits to curtail waste.

Energy and resource conservation, as well as reducing landfill trash, are the main goals of the reduction component. Disposable items are one of the main causes of dental waste in landfills. A portion of the dependency on throwaway items can be mitigated by using biodegradable products. The breakdown of materials by bacteria in a suitable environment is known as biodegradation. [15]

The following category is dedicated to reusable things instead than throwaway ones. The Eco-Dentistry Association states that a dental office can cut down on disposables by several thousand items annually by making the move to reusable goods. [16]

Reusable goods can cut down on the need to produce new ones, which lowers energy usage. With this objective in mind, dental product makers should work to create cutting-edge recyclable dental products. A large portion of the debris that is dumped in landfills can be recycled. Dental teams can rethink and integrate sustainability into treatment delivery in a variety of ways at the practice level. In an era where environmental consciousness is paramount, the profession must adopt best practice management practices to prosper. [17]

One of the main ideas of green dentistry is efficient waste management. Environmentally responsible methods can still follow the most recent guidelines for the dental setting from the CDC while trying to reduce waste. Cutting back on the quantity of products used is an easy place to start. Examples include supplying patient self-care products without plastic bags, utilising biodegradable paper cups and paper high-volume evacuation tips (instead of plastic ones, and reducing the amount of plastic barrier wrap used (while adhering to advised asepsis measures). [18]

Rethinking every operational strategy in the dental office in the context of environmentalism and sustainability could aid in the conservation of energy and water. Rethinking energy means converting to renewable and sustainable energy sources; rethinking buildings through green architecture; rethinking office operations means digitising all data collection procedures; rethinking waste management means paying close attention to waste segregation; rethinking

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sterilisation means choosing steam sterilisation over cold and chemical sterilisation; and finally, rethinking radiology means moving to digital radiology. Soon, amalgam-free dentistry is another objective to be accomplished. [19,20]

CONCLUSION:

It is the duty of every practicing dentist to reduce the generation of environmental pollution by practicing best green dentistry practices. The technology is advancing day by day, the clinicians must grab and utilize for the benefit of their patients and in turn should reduce the dental waste. The fresh graduates who wish to start dental clinical practice, should follow strictly the green principles.

REFENCES:

1. Rastogi V, Sharma R, Yadav L, Satpute P, Sharma V . Green Dentistry, a Metamorphosis Towards an Eco-Friendly Dentistry: A Short Communication. J Clin Dia Res 2014;8(7): ZM01-ZM02.

2. 10 ways to go green in your practice. Available from, https://www.ada.org › practice › practice-management. Last accessed on 19th April 2024.

3. How can you design environmentally friendly spaces that meet Americans with Disabilities Act standards? Available from: LinkedIn.https://www.linkedin.com › ... › Environmental Design.Last accessed on April 24, 2024.

4. Sachdeva A, Sharma A, Bhateja S, Bhateja S, Arora G. Green Dentistry: A Review. J Dent Oral Biol 2018;3(6):1-4.

5. Thakar S, Kinariwala N, Pandya D, Parekh NH,Patel NK, Aastha Patel A. Awareness and Constraints towards the Implementation of Green Dentistry amongst Dental Students and Private Practitioners of West India. J Pharm Bioallied Sci. 2023 Jul; 15(Suppl 2): S1287–S1290.

6. Al-Qarni MA, Shakeela NV, Alamri MA, Alshaikh YA. Awareness of eco-friendly dentistry among dental faculty and students of King Khalid University, Saudi Arabia. J Clin Diagn Res. 2016;10:ZC75–8.

7.Ranjan R, Pathak R, Singh DK, Jalaluddin M, Kore SA, Kore AR. Awareness about biomedical waste management and knowledge of effective recycling of dental materials among dental students. J Int Soc Prev Community Dent. 2016;6:474–9.

8. Mittal R, Maheshwari R, Tripathi S, Pandey S. Eco-friendly dentistry:Preventing pollution to promoting sustainability. Indian J Dent Sci 2020;12:251–78.

9. Martin N, Sheppard M, Gorasia G, Arora P, Cooper M, Mulligan S. Awareness and barriers to sustainability in dentistry:A scoping review. J Dent 2021;112:103735.

10. Kumbhalwar A, Mehta V, Mathur A. Green dentistry:A sustainable approach for rural india. JDentResRev2021;8:136–8.

11.Color meaning. Available from: http://www.bourncreative.com/ meaning- of -the color-green. Last accessed on Fab 13, 2024.

12.Srinivas S. Technical Bulletin: Green Hospitals. Available from: https://igbc.in/igbc/html_pdfs/technical/Green%20Hospitals.pdf. Last accessed on May4, 2024.

13. Vardeep Singh Dhillon 1 and Dilpreet Kaur Green Hospital and Climate Change: Their Interrelationship and the Way Forward J Clin Diagn Res. 2015 Dec; 9(12): LE01–LE05.

14. Pockrass F, Pockrass I. The four "R's" of eco-friendly dentistry. Am Dent Hyg Assoc 2008; 22:18–21.

15.Occupational Safety and Asepsis Procedures, 2010. Available at: https://cdn.ymaws.com/www.osap.org/resource/resmgr/Symposium_2010/GreenInfControl.pdf. Last accessed on April 7, 2024.

16. Farahani A, Suchak M. Eco-Friendly Dentistry: The Environmentally Responsible Dental Practice. University of Waterloo. Available at: https://ecodentistry.org/wp-content/uploads/2014/12/eco-friendly_dentistry_jcda.pdf. Last accessed on May 2, 2024.

17. Passi S, Bhalla S. Go green dentistry. J Educ Ethics Dent 2012; 2:10–12.

18.U.S. Centers for Disease Control and Prevention. Infection Prevention & Control Guidelines and Recommendations. Available at: https://www.cdc.gov/ oral health/infectioncontrol/guidelines/index.htm. Last accessed on May 1, 2024.

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19. Grose J, Richardson J, Mills I, Moles D, Nasser M. Exploring attitudes and knowledge of climatechange and sustainability in a dental practice: A feasibility study into resource management. BrDent J 2016; 220(4):187.

20.Aggarwal VP, Kakkar A, Singh S. (2017). Go green: A new prospective in dentistry. MOJCRR 2017; 1(1):00002.