

TELEDENTISTRY

Abstract

Teledentistry is a rapidly growing field in the dental industry that utilizes telecommunication technology to provide dental care remotely. Through virtual consultations, dentists can diagnose oral health issues, provide treatment recommendations, and even prescribe medications without the need for an in-person visit. This innovative approach to dental care offers several benefits, including increased access to care for individuals in rural or underserved areas, reduced travel time and expenses for patients, and improved convenience and flexibility. However, it is important to note that teledentistry has its limitations and is not suitable for all types of dental procedures. In cases where a physical examination or hands-on treatment is necessary, an in-person visit to a dental office may still be required. Nonetheless, teledentistry holds great potential for expanding access to quality dental care and improving oral health outcomes.

Keywords: Teledentistry, patient care, real time consultation

Authors

Dr. Saranya S

Associate Professor
Department of Periodontics
Vivekanandha Dental College for Women
Elayampalayam, Namakkal, India.
settu.saranya@gmail.com

Dr. Surya D

Associate Professor
Department of Periodontics
Vivekanandha Dental College for Women
Elayampalayam, Namakkal, India.
drsuryajp@gmail.com

Dr. Gopinath V

Professor and Head
Department of Periodontics
Vivekanandha Dental College for Women
Elayampalayam, Namakkal, India.
gopivivek1@gmail.com

I. INTRODUCTION

Teledentistry is a developing area of dentistry that links dental providers to their patients. Cook defined teledentistry as “the practice of using videoconferencing technologies to diagnose and provide advice about treatment over a distance.”^[1] This is an emerging field of dentistry that utilizes technology to provide remote dental-care services to patients. It is a form of telemedicine, which uses information technology to provide medical advice and services to patients who are unable to travel to a clinic or hospital. Teledentistry has the potential to revolutionize the way dental care is delivered, especially in rural areas and developing countries, where access to dental care is limited.

It is based on the idea of virtual care, where a dentist can interact with a patient remotely and provide information and advice on dental care. This can be done through various forms of communication, such as video conferencing, or even through text messages. The dentist can use various tools to evaluate the patient's condition, such as x-rays, photographs, and other digital images. These tools enable the dentist to make a diagnosis and provide treatment or advice on how to proceed.^[1]

Teledentistry can be used for a variety of different services, including diagnosing and treating common dental issues, such as cavities, gum disease, and tooth decay. It can also be used to provide preventive care and advice on proper oral hygiene. It can even be used to provide treatment for more complex issues, such as root canals or braces. The use of teledentistry can be beneficial for both the dentist and the patient. For the dentist, it can reduce overhead costs, since they don't have to travel to multiple clinics. It can also help them treat more patients in a shorter amount of time. For the patient, it can provide them with more convenient access to dental care, especially in areas with limited access to traditional dental services.

II. EVOLUTION

The American military initiated a telemedicine programme in 1994.^[2] Clinicians as well as technological experts have reevaluated teledentistry as a highly beneficial technique as a result of advancements in data transfer speed and method over the previous ten years. For instance, cases presented to dental laboratories may contain minute nuances or problems that call for close collaboration between the dental practitioner and the lab technician. In such cases, the capability of sending colour photographs of the patient's teeth and then discussing the images can assist in preventing the creation of badly made prostheses, saving both time and money.^[3]

III. METHODS OF TELECONSULTATION

Teleconsultation in the teledentistry involves the two types of ways;

- Real Time Consultation
- Store and Forward Method

- 1. Real Time Consultation:** A video conference that follows Real Time Consultation enables dental experts and their patients in various locations to see, hear, and speak with one another.
- 2. Store and Forward Method:** The "store and forward" method entails the sharing of clinical data, static photographs gathered and kept by the dentist, and forwarding them for consultation and treatment planning.

IV. SCOPE OF TELEDENTISTRY

- Improve access to oral health care
- Improved delivery to oral health care
- Lower the cost of oral health care
- Eliminate the disparity in oral health care between the rural and urban communities.

V. REQUIREMENTS

The Store and Forward method provide excellent results for many dental applications. It consists of;

- Computer with substantial hard drive memory
- Adequate RAM
- Speedy processor
- Intraoral video camera
- Digital camera for the capture of pictures
- Modem and an Internet connection
- At times, a printer, fax machine, and scanner are also required.

VI. ROLES OF TELEDENTISTRY IN VARIOUS DEPARTMENTS OF DENTISTRY

- 1. In Prosthodontics:** It increases the number of dental specialists in sparsely populated areas for prosthetics and oral rehabilitation services.
- 2. In Oralmedicine and Radiology:** It uses distant diagnosis for the diagnosis of oral lesions sent by digitally in mails and also helps to provide oral health care by linking up with distant oral health team.
- 3. In Oral and Maxillofacial Surgery:** It provide cost effective mechanism to pre operative evaluations in which patient has difficulty in transportation and also improves the efficiency of the specialty consultation, providing improved care to the maxillofacial patient.
- 4. In Endodontics:** It successfully diagnosis the periapical bone lesions and periapical lesions of the front teeth and reduce the cost the cost of distant visits.
- 5. In Orthodontics:** It is highly helpful in the orthodontic field since small emergencies (rubber ligature displacement, discomfort from the appliance, and cheek irritation) can be

addressed at home, assuring the patient and parents on the one hand while reducing visits to the orthodontist

6. **In Periodontics:** It advises the patients to take care of their oral health by suggesting to do regular scaling and in some severe cases doing root planing and periodontal surgeries.
7. **In Pedodontics:** It is feasible and cost effective in visual oral examination for caries screening especially early childhood caries in preschool children.

VII. TECHNICAL ISSUES

With teledentistry, the absence of the dentist (to diagnose or treat) is no longer the only factor that might have an adverse effect on the results of care. The technology itself can also play a role. Patients' comprehension of technology and any associated issues is a cause for concern.^[4] If equipment malfunctions cause a patient's injury either directly or indirectly, healthcare personnel could be held liable in a lawsuit. In addition, under one of the five concepts related to product responsibility, including strict liability, the appliance producer, software and hardware retailers, utility companies, and equipment service providers could be held accountable for technological issues relating to their products.^[6,7]

VIII. CONCLUSION

Teledentistry can be helpful in various emergency situations and with the help of technological advancements it can create a virtual dental health clinic and an entirely new era of dentistry and provide oral health care to the long-term unavailable situation like space flights, transoceanic ships and remote or tribal areas.

Numerous legal questions have been created as a result of the widespread usage of teledentistry and information accessibility. By inclusion, dentistry can be considered to fall under telemedicine regulations. The World Wide Web is significant, and its impact on the dental industry will be significant. On the internet, there are no "rules" and there is no licencing or verification.^[8,9]

Even merely forwarding an email to a coworker could be construed as teledentistry referral, subjecting you to legal repercussions. Understanding the effects of using information technology and their related legal repercussions for the dentistry practise is the duty of each practitioner. Each practitioner should consult with an experienced lawyer who is knowledgeable about teledentistry and its ramifications.^[10]

Overall, Teledentistry is a promising field of dentistry that could revolutionize the way dental care is delivered. It has the potential to provide better access to care for those in rural or developing areas, and it could help increase the efficiency of dental care services. With its potential to improve the quality of life for those in need, it is an exciting development in the field of dentistry.

REFERENCES

- [1] Cook J, Austen G, Stephens C. Videoconferencing: What are the benefits for dental practice? *Br Dent J* 2000; 188:67-70.
- [2] Rocca MA, Kudryk VL, Pajak JC, Morris T. The evolution of a teledentistry system within the department of defence. *Proc AMIA Symp* 1999; 921:4-8.
- [3] Torbica N, Krstev S. World at work: Dental laboratory technicians. *Occup Environ Med* 2006; 63:145-8.
- [4] Ignatius E, Perälä S, Mäkelä K. Use of videoconferencing for consultation in dental prosthetics and oral rehabilitation. *J Telemed Telecare* 2010; 16:467-70.
- [5] Young HJ, Waters RJ. Licensure barriers to the interstate use of telemedicine. *Telemed Today* 1996; 4:10-1, 34.
- [6] Bauer JC, Brown WT. The digital transformation of oral health care. *Teledentistry and electronic commerce. J Am Dent Assoc* 2001; 132:204-9.
- [7] Clark GT. Teledentistry: What is it now, and what will it be tomorrow? *J Calif Dent Assoc* 2000; 28:121-7.
- [8] Passi D, Singhal D, Singh G, Ahuja V, Bhardwaj S, Sahni A, *et al.* Teledentistry a new era, evolution and advancement in dentistry. *Int J Curr Res* 2017; 9:63256-63.
- [9] Ignatius E, Perälä S, Mäkelä K. Use of videoconferencing for consultation in dental prosthetics and oral rehabilitation. *J Telemed Telecare* 2010; 16:467-70.
- [10] Mair F, Whitten P. Systematic review of studies of patient satisfaction with telemedicine. *Br Med J* 2000; 320:1517-20.