

Telepedodontics - Research & Review

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ABSTRACT

Teledentistry in pediatric dentistry - Telepedodontics, a comparatively new field, can modify the dynamics of the dental care delivery system. Maximum of the dentists are ignorant about teledentistry, about its goals and benefits and how to get involved into it. This review demonstrates as to how teledentistry can be an actual solution for dentists and their patients.

Teledentistry gives a likely resolution to many enduring complications in dentistry, but it also faces substantial challenges. Its evolution will be contingent as much, on the struggles of the health authorities as on the combined efforts of the dental professionals.

Telepedodontics can meet the dental care needs of the underserved in the rural areas of India and it can guarantee the good oral health of the children in schools and child care centers. Telepedodontics gives new opportunities for dental education by providing an easy access to primary care professionals for effective consultation, thus serving in piloting effective postgraduate education and continuing dental education programs.

Key Words: Telepedodontics, Teledentistry, Preventive Dentistry, Pedodontics.

INTRODUCTION

Dental care is being continually altered by the opportunities which are delivered by technology and telecommunication [1]. Tele dentistry is a comparatively new field that syndicates telecommunication technology and dental care. Due to the huge development of technological proficiencies, teledentistry owns the potential to basically change the current practice and the face of the dental care [2]. The term “teledentistry” was used in 1997, when Cook defined it as “the practice of using video-conferencing technologies to diagnose and to provide advice about the treatment over a distance” [3]. ‘Teledentistry’ permits a whole new way of giving specialist advice. By the use of telecommunication and computer technologies, it is now conceivable to deliver interactive access to specialist views that are not limited by the limitations of either space or time.

The referring dentist logs into a secure web-server and fills in the patient’s details, the detailed reasons for the consultation, the chief complaints and the provisional diagnosis information and attaches the digital intra-oral images and the scanned digital dental radiographs. The specialist then logs into the secure web server, analyses the case and proposes his diagnosis and treatment plan within a specified time.

TELEPEDODONTICS AND ITS APPLICATION IN DENTAL EDUCATION OF THE PEDODONTISTS

The role of Telepedodontics in education can be divided into two main categories: self-instruction and interactive video-conferencing.

The Web-based, self-instruction educational system contains evidence that has been established and deposited before the user opens the program [4]. The benefit of this system is that the user can regulate the speed of the learning and can read the material many times at convenient times [5]. Johnson and Schleyer [6, 7] considered the Web-based dental continuing education and assessed them on the basis of a set of well-designed guidelines by applying the Design of Educational Software. Spallek and colleagues [8] lead a survey of the applicants in several Web based dental CE courses and found that absence of in person communication with their colleagues and mentors could result in disappointment.

Interactive video-conferencing may be lead via POTS (plain old telephone service), satellite, ISDN, Internet or Intranet. Interactive video-conferencing comprises both a live interactive video-conference with a proper camera set up where the patient's data can be transmitted; and associated information (such as the patient's medical history, radiographs, etc) that can also be referred before or at the similar time (for example, via fax) as the videoconference. The benefit of this type of education system is that the user can receive an instant response [5].

ROLE IN PEDIATRIC AND PREVENTIVE DENTISTRY

Telepedodontics is particularly beneficial for children. Applying teledentistry, children's teeth were checked for early childhood caries, thru which it was reported that all children enjoyed seeing their teeth on the computer screen. Dental imaging was assumed as a game by them, quite than as a dental examination. Furthermore, as no instruments are used and the camera head does not need to be put in far into the child's mouth to obtain dental images, there was less menace of uncooperative behavior by the very young child or toddler than that posed by a routine dental examination. Child comfort is also enhanced when the teledentistry examination is done in a known environment, as compared to a clinic. This lead to in children being more enthusiastic and co-operative at the imaging and recording processes. Furthermore, guardians and children saved the time off work or school for travel, and a child can be tracked effortlessly to conclude whether treatment has been taken, or if an emergency assessment is wanted.

Kopycka-Kedzierawski DT and Billings RJ presented that teledentistry is more or less equal to visual/tactile examinations for dental caries screening in pediatric patients.[9] Kopycka-Kedzierawski DT *et al.* recommended that teledentistry offers a possibly well-organized means of screening high-risk preschool children for signs of early childhood caries.[10] They successfully established a teledentistry project recognized in inner-city child-care centers in Rochester, NY.[11] Amavel R *et al.* detailed that distant diagnosis of children dental problems based on non-invasive photographs set up a valid resource.[12] Kopycka-Kedzierawski DT *et al.* validated that the intraoral camera is a possible and potentially economical substitute to a visual oral examination for caries screening, particularly early childhood caries, in preschool kids attending childcare centers.[13]

TELEPEDODONTICS AND ITS USE IN RURAL AREAS FOR THE PEDIATRIC PATIENTS

In country areas, where there is a scarcity of specialists, the deficiency of comprehensive and sophisticated health care is a problem. Telepedodontics can increase the accessibility of the specialists to the village and underserved groups for their dental needs, also lessening the time and the price which are related with the specialty sessions [14].

Altering the service delivery method may also certainly affect the viability of a rural practice. Separation from peers, specialists, and continuing education opportunities are the undesirable aspects of a rural practice. Providing dental care in a salaried arrangement allows one to meet

the financial obligations while learning to build the competences which are expanded with experience in care delivery without incurring additional debt. It also allows one to model the experience of existing in a rural setting without requiring to a permanent relocation.

TELEPEDODONTICS AND ITS ROLE IN POSTGRADUATE EDUCATION IN THE DEPARTMENT OF PEDODONTICS AND FOR DENTAL PRACTICE

Telepedodontics can serve as a good tool for teaching postgraduate students and for giving current updates for the practicing dentists.

In shared video-conferencing, the patient data is assessed first (with or without the patient's presence), that lets for the communication and feedback among the teacher and the students. The patient cases can be studied thoroughly and at the students' speed. The cases can be deliberated in detail after all the clinical data have been composed and conveyed, without the patient being there at the arranged meeting. This improves the students' enthusiasm and offers new learning prospects for the dental students and the practicing dentists.

THE ROLE OF TELEPEDODONTICS IN SCHOOLS AND CHILD CARE CENTRES

It is the essential to develop models for schools and child care centers in our nation to use Telepedodontics to raise the access to dental care for the kids. Schools and child care centers play an important role in guaranteeing the optimal oral health of the children through:-

- Screening for dental problems beforehand these become emergencies [15].
- Assisting children in handling chronic illnesses.
- Linking children and their families to the required health and social services.
- Giving urgent care.

Pediatric dentists at the University of Rochester use the images of toddlers to classify those with early childhood dental caries. A study of the program found that nearly 40% toddlers had tooth decay. The timely detection of such decay can stop the child from painful and monetary trauma, visits to the emergency treatment room, and eventually, extractions of the teeth [16].

Telepedodontics may serve as a tool to supplement and multiply the capacity of school and child care centers to meet the children's dental care requirements by expending technology to link to the health providers at another location.

SCOPE OF TELEPEDODONTICS IN INDIA

India has opened up to Telepedodontics to address many issues which are being confronted by the healthcare delivery system, like insufficient health organization and clinical services, paucity of competent doctors, the nearly non-availability of specialist care, the late detection of the illness, the deferral in the conveyance of the treatment due to the greater time which is essential for the transport of the patients to city healthcare facilities and the delivery of healthcare by inexperienced primary healthcare service providers [17].

In 1999, the Department of Information Technology, the Ministry of Communications and Information Technology (Government of India) propelled a pilot project which was titled, 'Development of Telemedicine Technology', with the aim of strengthening the national healthcare delivery system [18]. The key terms of the project comprised [19].

- To recognize the suitable technological tools and facilities which are essential to implement telemedicine technology at the three leading hospitals in the northern parts of India, viz., All India Institute of Medical Sciences (AIIMS), New Delhi, the Post Graduate Institute of Medical Education and Research (PGIMER) at Chandigarh and the Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS) at Lucknow (Uttar Pradesh).
- To improve and perform system integration to permit telemedicine technology and for

starting telemedicine services (teleconsultation and telediagnostic services for the specialties of radiology, cardiology and pathology and teleeducation) at three tertiary level hospitals.

- To train clinicians in the use of telemedicine technology.

In India, where a bulk of population lives in countryside areas and where healthcare amenities are inadequate, Telepedodontics can have a significant contribution in linking the gap between the demand and the supply.

FUTURE PROSPECTIVES OF TELEPEDODONTICS

The advances in telecommunication have rightly enabled the dental care to assure many exhilarating modifications during the following few years [20]. Still, like any revolution, it will not be stress-free or effortless. There are definite issues which need resolution for the success of Telepedodontics. These issues comprise inter-state licensure, jurisdiction and malpractice, as well as technological, security and ethical features [21].

Several measures that can be engaged for the effective application of teledentistry are:

- The tutors of the teledentistry education courses need to be well experienced with software knowledge and they should have satisfactory teaching experience [7].
- The practitioners who are involved in teledentistry must have a license in each state in which they practice [22].
- Dentists who are involved in teledentistry must make every effort to confirm the security of their systems, as well as of any data that they may communicate. For example, data encryption, password protection and user access logs can help in discouraging most of the people and in shielding patient confidentiality [21].

SUMMARY

Dentistry, in a synergistic amalgamation with telecommunications technology and the Internet, has produced a relatively new and thrilling field that has limitless potential. Telepedodontics can be used as an appreciated tool for giving dental care in village areas, where there is a scarcity of pedodontists and a lack of complete and sophisticated health care. It can be an answer to the obstacles of dental care like the absence and price of transport, leave from work and school and to save the patient's money. Furthermore, Telepedodontics gives new chances for dental education by providing the primary care professionals with an easy access to effective consultation and by serving in directing postgraduate education and continuing dental education programs.

In spite of few problems which need to be determined, the potential of Telepedodontics is wonderful, which needs to be discovered.

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