

Role of technology in the future of dentistry



Introduction

The profession of dentistry dates back to centuries ago when we see Greek ancients replacing the missing teeth and covering the edentulous area with certain type of prosthesis embarks the origin of present day prosthodontics. Through span of time, dentistry and dental care has advanced from a crude type of prescription to cutting edge utilization of protection dental consideration, best in class diagnostics and present-day treatments. A field of dentistry has seen numerous changes and upgrades throughout the course. We can proudly say that gone are the days when pulling a teeth out was more like a torturous and horrendous act.

The digital revolution nowadays has an impact on almost every aspect of life and it likewise is affecting dentistry and providing best possible solutions and alternative to make dental procedures easier and humane for both user ends, dentists and patients. Professional experts say that introduction of mechanical advancement and technological revolution will eventually enhance and expand dental interventions and care making it accessible to mass. By the help of aiding technological features, one would be able to enjoy a healthy smile that too with less dental visits, all done within a day at a cheaper and reasonable price.

Dental Informatics, relatively a new segment, in dentistry aims to bridge the gap between patient care and care provider, making the life easier for both ends. By recording all the patient data, the chances of dangerous clinical mistakes that dentists make are reduced. It not only helps accessing patient information faster but, also aids in better clinical decision making.

Review Methodology

This scholarly research review aims to find the relation and impact of incorporating technology and informatics in the application of dentistry. To collect and gather information, databases like PubMed, OMICS International, and E-journals and E-books (Lavery Library) were used. The main keywords were technology in dentistry, informatics in dentistry, manual versus powered toothbrush.

The articles regarding informatics in dentistry were not based upon traditional randomized controlled studies rather they were a collection of many observations and opinions. Another review which was selected was an update of a Cochrane review, firstly published in 2003 and then in 2015. The authors used electronic databases like Cochrane Oral Health Group's Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2014, Issue 1), MEDLINE via OVID, EMBASE via OVID and CINAHL via EBSCO (Yaacob, et al., 2014). Standard methodological procedure were used with the selection criteria set as randomized controlled trials of at least 4 weeks of unsupervised powered tooth brushing versus manual tooth brushing in children and adults (Yaacob, et al., 2014). " Fifty-six trials met the inclusion criteria; 51 trials involving 4624 participants provided data for meta-analysis" (Yaacob, et al., 2014).

Study Findings

One of the achievements of technology is the introduction of smart toothbrushes which has helped in reducing plaque and improving periodontal health. Also, the introduction of laser therapy has helped both clinicians and

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patients in achieving better and healthy gums and treating periodontal diseases with less surgical approach. A majority of studies support both the advancements in the course of these branches. A study findings suggests that, “ powered brushes achieve a moderate reduction of plaque and gingival bleeding scores” (Vandana & Vibhute, 2012). When compared with other similar studies, common results were seen such as,

- Powered tooth brushing reduces plaque and gingivitis more than manual tooth brushing.
- Use of rotation oscillation brushes helps in achieving significant reduction in plaque.
- The clinical significance behind this reduction is not known.
- These studies provide platform for further trials and meta-analysis.
- Cost was the determining factor in not adapting it. (Yaacob, et al., 2014)

A substantial and noteworthy part of this progressive upheaval is the continuous advancement of diagnostic tools that can examine and evaluate our physical condition with ever-more prominent exactness. That incorporates progressed computerized imaging, similar to a right now available framework called the Canary. Amid a 3-sec scan, an electric rotating tooth brush gadget produces red laser light; which might distinguish breaks and caries that are too little to appear on an x-beam. Another gadget, the “ S-Ray,” ultrasonically maps the two teeth and gums in 3-D to discover dental decay and infections. Upon endorsement from the U. S. Food and

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Drug Administration, specialists think s-beams might be less expensive than x-beams. In addition, neither one nor the other systems expose patients to damaging radiation (Guynup, 2016).

An apt blend of technology and clinical practice can bring a suitable fit of healthy outcome for both patients and healthcare providers in terms of productivity as well as efficiency. “ To be truly useful, informatics must be understood as a research discipline aimed at uncovering generalizable principles. Systematic understanding of the goals, technique, methods and implementing strategy of informatics, individuals and communities working in applied areas of science will be able to identify effortlessly how informatics could potentially be a useful tool in their own work” (Chhabra, 2016).

Analysis

By the review, it is clearly indicated that by the help of advance technology, manual tooth brushing can be upgraded to powered tooth brushing as it helps in reducing the plaque and maintaining the healthy periodontium. This is made available due to the incorporation of technology within the realm of dentistry that how it can be used to provide better results in case of oral health care. Every day, healthcare providers must incorporate patient information data, for example, intra - and extra oral exams, radiographs, clinical pictures and dental histories to advance to treatment options. From that point, a shared decision-making process between health-care provider and patient serves to characterize the treatment plan, however the nature and quality of the data, our capacity to impart, ability to communicate and educate; helps to inform patients' decisions and shape the treatment path. In

regular dental practice, the process of collecting patient information data, documenting and reporting the clinical situation and planning treatment has been affected by several key technologies.

As higher caliber advanced data ends up accessible to analysts, the potential for more exact determination and treatment just keeps on developing.

Information records that include demographics, person's dental and medical history, and additionally the genomic history will enable dental experts to determine predisposition to different sorts of diseases that would contribute to making accurate diagnosis in oral healthcare. Sooner rather than later, specialists and dental specialists will progressively be able to modify and shape treatment planning according to the customized hereditary genetics. This decision making approach will involve measures that are best according to the personalized genomic system and physiology. It would also help to target the specific and particular microbes/viruses that is the root cause problem in the first place. This is the result that is achieved when all these segments like technology, dental informatics are being used concurrently and harmoniously.

Like any dental specialist who has chosen to eliminate traditional paper charts and adopt electronic records, it is an open secret that this procedure is troublesome and tedious. The advantages, be that as it may, are justified regardless of the developing torments. Using electronic patient notes and charting, pictures, radiographs, billings, claims, and so forth creates efficiencies and better work processes for the entire team in a workplace. Dental associates no longer have to scramble over to find patient records when some patient walks in an emergency. And also, dental administrator

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now can more effortlessly gather data for referrals and protection claims. However, this is all made possible due to the use and application of informatics within the field.

Before one can take full advantage of the field of informatics; which sole purpose is to solve practical problems, one should be able to understand what informatics is, in the first place. It is often confused by the Information Technology which is altogether different in nature than informatics. With a better understanding of the area, one can utilize the benefits to its maximum (Bhatt et al, 2015).

Despite the value of such a field, many dental practices are yet not ready to get full use of its services (Chhabra, 2016). How will this advanced technology and the field of informatics will reshape dental practice if the dental practitioners are not ready to adopt and implement it in their regular practice. As it is said that mouth is the gateway of all diseases, likewise dentistry is not separated from other healthcare entities. It is somehow inter-related to all other healthcare segments even including the investors and patrons, regulatory bodies, accountability issues and risks associated with the decisions made by dentists. It is no secret that transition can be cumbersome for some people and the road to clinical practice fully supported seamlessly by informatics is laborious and difficult. Significant effort along with the investment would ensure the implementation of informatics theoretical practices. As dental informatics is in its morphing structure, there is no question that many practices will fail initially but as the evolution of dentistry appreciates its successes, it can also appreciate and learn from its failures.

Conclusion

In a nutshell, if in fact you were reluctant in coming in to see a dental practitioner in light of an awful past experience you had, dread of agony, or anything like that, you should know, circumstances are bit different in these times. Dental practitioners can discover more about your mouth and teeth now, than at any other time, generally without you feeling a thing. It's just not like the horror tales and accounts of the past. Along these lines, if fear is a factor that pushes you so firmly away, it would be worth if you attempt and reevaluate and give it a try. We are in the Golden Age in regards to dental innovation and even medicine in general. So, go to a modern, high tech dentist and find out for yourself what it's like going to innovative dental specialist.

No matter how advance the dental practice is, there is always a room for change, a better update of the current system. It would not only help patients but the dentists too in many regards. Information is the cornerstone to dependable clinical decision-making. The faster information can be accessed, analyzed and exchanged, the more quickly and accurately we can provide answers to our patients. This guarantees that the care we provide is educated and as exact as could be expected under the circumstances. In the event it would give one an opportunity utilizing a refresh or two in an office, beginning with streamlining the products. There is maybe no less demanding approach to rapidly and effortlessly upgrading your practice profitability by refreshing your administrative database to a cloud-based framework that is made conceivable with all the exploration done by the field of informatics.

It is strongly suggested to get accustomed to the advanced technology that can help and enhance patient care. But provided the current literature data, more research and studies need to be done on this branch. Thus, by the amalgamation of both technology and informatics we can achieve a modern dentistry that would help both patient and dentist in achieving heights and take dentistry to new levels.

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