



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

*International Journal of Recent Scientific Research*  
Vol. 9, Issue, 2(F), pp. 24195-24198, February, 2018

**International Journal of  
Recent Scientific  
Research**

DOI: 10.24327/IJRSR

## Review Article

### SOFTWARES IN DENTAL PRACTICE- A LITERATURE REVIEW

**Abdul Saheer<sup>1</sup>, Farzanz T Ziyad<sup>2</sup>, Ajmy Rasheed<sup>3</sup> and Shanila Abdul Majid<sup>4</sup>**

<sup>1</sup>Department of Public Health Dentistry, Al Azhar Dental College, Thodupuzha, Kerala

<sup>2,3</sup>Al Azhar Dental College, Thodupuzha, Kerala

<sup>4</sup>Department of OMR, Al Azhar Dental College, Thodupuzha, Kerala

DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0902.1615>

#### ARTICLE INFO

##### Article History:

Received 10<sup>th</sup> November, 2017

Received in revised form 14<sup>th</sup>  
December, 2017

Accepted 08<sup>th</sup> January, 2018

Published online 28<sup>th</sup> February, 2018

#### ABSTRACT

Nowadays, we all need help of software to work fast, efficient and accurate to compete and stay ahead in market. Need for dentists have risen recently due to more dental related problems in daily life. Better patient management, medical record tracking, retention of patients, minimised medical errors, increased reporting and compliance with quality standards have become top priorities in health care sector. Hence to serve all patients with accuracy and efficiency, and to keep track on all records, dentists need the help of software. The brief review tries to explore the role of softwares in dentistry

**Copyright © Abdul Saheer et al, 2018**, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

#### INTRODUCTION

The term dental software is used for software used in dentistry. Computers have been used in dental medicine since the 1960s<sup>(1)</sup>. Since then, computers and information technology have spread progressively in the dental practice. According to reports by Atkinson.J<sup>(2)</sup> in the year 2000, 85.1% of all dentists use computers.

Dentistry informatics is the application of both the computer and the scientific information in the improvement of the dental practice. In this context, there are the application systems accounting for the collection, processing and retrieving of data and information. There are various application systems on the market in order to facilitate the work of the dentist.

Some of the key functions of dental software is maintaining patient and family records, paper and electronic insurance claims, appointment scheduling, appointment pre-blocking etc. Thus it plays a critical role for dentist in practice. Each software varies in function, design and development. Since many software have complicated programs, it is difficult for the dentists to comprehend and they get very poor utilization of software features. So which is the best dentist software? This is at most difficult question in today's competitive market because everyone claims their dental software is best compared to others while in reality every dental software differs from each other. Hence this review aims to understand the different

dental software available in market and their utilisation by dentists in clinical practice.

For this review, we collected as much information about dental software from several books, practicing dentists, software providers, their company websites, internet. We contacted dental software providers like Dentimax, DoDent, and Indian dentist. We attended dental workshops and compared dentists view about practice management software. We browsed different internet sites and analysed views about dental software from various software providers and buying dentists. Different journals and books about dental software were studied and collected the data.

##### Classification

Dental software is categorised as administrative, clinical, and for the Internet Byschleyer<sup>(3)</sup>, irshner<sup>(4)</sup> and Zimmerman *et al.*<sup>(5)</sup> categorized dental software functions for administration and management of patients documentation, electronic archives of the documentation, telecommunication, computer - aided education, computerizing instruments and techniques in the dental office software assisting with clinical decision making. Software commonly used for clinical purpose is for electronic dental records, electronic dental designs, dental imaging software and software used for diagnostics and treatment.

There are several free dental software available. They include shareware, freeware and open source dental software. Most

\*Corresponding author: **Abdul Saheer**

Department of Public Health Dentistry, Al Azhar Dental College, Thodupuzha, Kerala

frequently the free dental software is provided as shareware. This means, that the dental software license allows its usage only for evaluation purposes. All classification of dental software is relative, since there are software products designed for realising more than one task. A larger classification based on the specific task shows more types of tasks and software. This categorisation of dental software is:

- Dental administration management
- Dental practitioners records management
- Dental schedules and dental scheduling
- Patient dental records management
- Dental billing
- Dental imaging processing
- Dental diagnostics
- Dental treatment helping
- Computer aided dental education
- Software for usage of dental instruments and other techniques used in the dental practice.

#### ***Dental administration management software***

Different administrative and government institutions in the different countries of the world demand requirements to the dental practitioners. Such institutions may be health insurance companies, health booking office, government registers and others. The dental administration management software is made to help both the administration workers and dentists for meeting these requirements.

#### ***Dental practitioners records management software***

The dental practitioners management software is a software most frequently used in dental clinics, or in hospitals, where more than one dental or medicinal practitioner works. The dental practitioners records management is mostly used from the administration and helps the users to effectively manage the records of the practitioners. There are many dental practitioners management software projects, available in the market.

#### ***Dental schedules management software***

The dental schedules managing software is designed to distribute the obligations of the dental practitioner in such a way, so no time both of the dentist and of the practitioner to be unnecessary lost. A re-schedule is therefore a must to meet business requirement.

#### ***Patient records management dental software***

Patient records management dental software is used by the dentist to organize the records of the patients in their practice. The computer patients management software is used for collecting, managing, saving, and retrieving medical information for the patients, and for creating reports for the patients. Computers in dentistry were first used to record dental archives as an alternative of paper dental documentation. Later, the term "computer based dental documentation" was replaced with the term electronic patient record (EPR) since the latter better describes the method and the environment in which the patient record is being managed<sup>(6)</sup>. In 1991, an official report of the Institute of Medicine of the National Academies in Washington, USA gave definitions about what functions must implement a computer based system for health documentation.

The American Dental Association (ADA) created specification number 1000 and number 1004<sup>(7)</sup> concerning the structure and the content of the electronic health record. The medical data include identification and contact data, date of next visit, number of previous visits, anamnestic, clinical and paraclinical data, applied treatment, and treatment results data. Patient Records Management Dental Software is the most frequently used dental software.

Web-based dental patients records management software has been proposed. The web-based records save the information for the patients in a central web server instead in the computer in the dental office

#### ***Dental imaging processing software***

The dental imaging processing software, or imaging software, defines software used for creating, processing, viewing and storing dental rentgenografic (X-Rays), intra and extra-oral images. Generally, dental imaging software is included in the product package of dental rentgenografic devices or can be purchased separately.

#### ***Dental diagnostics helping software***

The software products are usually based on technologies, that try to stimulate human intellect, called artificial intelligence or AI. The expert systems designed to enhance the diagnostic process, are part of the dental expert systems software. Today for more appropriate definition is supposed to be decision support systems, or DSSs, and knowledge based systems (KBSs).

#### ***Dental treatment planning software***

The usage of computer technologies for taking clinical decisions for the treatment of dental patients started at the end of the 1970s. The software products are usually based on technologies that try to stimulate the human intellect, called artificial intelligence or AI. The expert systems designed to enhance the treatment process, by providing the dental practitioner with a treatment plan are known as dental expert systems software. Today for more appropriate definition is supposed to be decision support systems, or DSS, and knowledge based systems (KBS). Such software products are designed for therapeutic dentistry or prosthodontics.

#### ***Dental internet and ethernet communication software***

Telecommunication technologies found application in the medicine in the 1950s, which led to the defining of a new term: telemedicine. In 1997, Cook first used the term "teledentistry"<sup>(8)</sup> and defines it as the practice to be used videoconference technologies for diagnosis placement or consultations for the treatment from destination. Different variations of medical and dental data interchange using internet are developed. It is expected this type of software will revolutionize the way for interchanging information between medical and dental practitioners. Today teledentistry includes activities such as information interchange by phone lines, fax machines, and transfer of computer based documents via the internet. There are also special software products, designed for communication and information interchange between dentists, and software products designed to access dental information by the use of internet.

### **Computer aided dental education**

The computer assisted education is an element from the remote education. The term “electronic learning” or “e- learning” defines the usage of internet and multimedia in the educational course. Schleyer<sup>(9)</sup> describes the learning with the help of computer software as a means of overcoming the faults of the traditional forms of education. In 1997 Cook wrote about the usage of videoconference technologies by the means of their usage for dental education<sup>(10)</sup>. Today software for computer aided dental education are made for various dental specialities: orthodontics, dental imaging, endodontics, cariesology, oral pathology, pediatric dentistry, parodontology, and prosthodontics.

### **Software for usage of dental instruments**

Instruments used in dentistry and needing software to operate are large number of models of digital rentgenography hardware, intraoral cameras, various diagnostic hardware products such as for early caries detection, parodontal probes, CAD/CAM systems.

### **Dental Practice Management Softwares**

#### **Different Practice Management Software System and Vendors available in the international market as on 2013 January**

- ABELsoft corporation - ABELDent
- Ace Dental - ACE Dental Practice Management Software
- ADSTRA System,Inc.-Practice Made Perfect
- AlphaDent-AlphaDent Periodontal Management System
- AlphaDent-AlphaDent Practice Management System
- AltaPoint Data System,LLC-AltaPoint Dental
- AltaPoint Dental-E.M.R
- Applied Computer Concept-Dental Office Manager Studio
- CamSight-Camsight Dental Management
- Damar Software-OmegaPrax Dental
- Data Team DDS-Data Team DDS
- Datacon Dental Systems-Datacon Dental General Practice
- Datacon Dental Systems-Datacon Endo
- DDS Works-DDS Works
- Demandforce,Inc.-Demandforce Dental
- Dental.Com-Dental.Com Frontdesk and Clinical
- Dent best
- Dentacure
- DentiMax-DentiMax
- Dentisoft Technologies,Inc.-Dentisoft Office
- Dentist Management Corporation-DAISY
- Dentistry21-Practice-XL Dental Analysis & Consulting Software
- Dentique
- Diamond Dental software-Diamond Dental Software
- Discus Dental,Inc-Perio Vision
- DoDent Software
- EZ 2000 Dental Software,Inc-EZ 2000
- Genesis Software,Inc-Genesis Dental Software
- Healthsoft,Inc-Windent SQL

- Healthsoft,Inc-Windent OMS
- Health Ware Corporation-iDental
- Henry Schein Practice Solutions-DentalVision
- Henry Schein Practice Solutions-Dental Vision Enterprise
- Henry Schein Practice Solutions-DentalVision Pro
- Henry Schein Practice Solutions-DENTRIX G2/G3
- Henry Schein Practice Solutions-DENTRIX Enterprise RT 3.0
- Henry Schein Practice Solutions-Easy Dental
- Henry Schein Practice Solutions- Endo Vision
- Henry Schein Practice Solutions-Perio Vision
- Indian Dental Software
- Incysive Technologies-Incysive Technologies Software
- Internexsys Corporation-Dental Infomanager
- Ivo clove
- KODAK Dental Systems-KODAK PRACTICEWORKS Practice Management Software
- KODAK Dental Systems-KODAK SOFTDENT Practice Management Software
- KODAK Dental Systems/Practiceworks,Inc.- PracticeWorks Office
- MacPractice,Inc.-MacPractice DDS
- MDC System&Services,Inc-DentalMate
- Mogo,Inc.-MOGO
- MultiMedia Dental Systems,Inc.-Mediadent
- Sans net
- Smart Doc
- SQL Office Computer Systems,Inc.-Office Partner
- Open Dental-Open Dental
- Pappyjoe Dental Software
- Patterson Dental Supply,Inc.-Eaglesoft
- PerfectByte-PerfectByte
- Planet DDS,Inc.-Denicon
- Practice-Web Inc.-Practice-Web Dental
- Prime Dental Software-Prime Dental Software
- Professional Economics Bureau of America,Inc.-PEB for Windows
- Professional Economics Bureau of America,Inc.- XLDent
- Softech Inc.-DentechDeantal Software Solutions
- StarbyteSystems,Inc.-Star Byte Dental
- Suzy System Inc.-SuzyDental
- Teleo Practice Services,Inc.-The Complete Practitioner
- The Systems Workplace,Inc.-TDOCS
- The Systems Workplace,Inc.-TDOCS Glod-The Systems Workplace
- The Systems Workplace,Inc.-TDOCS Platinum-The Systems Workplace
- Toothpics Company-Toothpics

### **Advantages of Dental Practices Management Software**

- Medical Record at anytime
- Better patient management
- Avoid Space constrain for record keeping
- Patient retention
- Minimize manpower and manual errors
- Avoid the chance of malpractice

- To win the competition
- Analyze the performance of clinic time to time
- Effective utilization of resources Report for better planning & auditing
- Easy insurance processing

#### **Limitations of Dental Softwares**

- Most of the dental software available are very costly to purchase
- For making full advantages from it, full time staff required
- Time consuming procedure to record each details
- Its not required for an expert dentist
- Explanations to the patients required

#### **Most Memorable Experiences To Show Its Advantage**

- Patient argued with the dentist for the amount he paid and clarified it with the help of software
- Patient agreed for aesthetic treatment through education using dental software
- Helping to maintain friendly relationship with the patients
- Patients contacted even if they are abroad using the software mail id and auto reply system

#### **Minimum Features Expecting From A Basic Practice Management Software**

- Patient recall
- Patient payment
- Patient data retrieval
- Treatment details
- Patient statistics
- Finance management

#### **Advice for Fresh Dental Practitioners**

- Should use the modern techniques to survive
- Everyone should know how to use it.

#### **Innovation Concepts for Easier Practice Management**

- Advance booking system
- Windows Contact address program instead of expensive software

#### **Dental Software Researcher Reports on Software Buying Trends**

Dental software researcher, Software Advice.com<sup>(11)</sup>, reported that dental offices overwhelmingly investigate the purchase of integrated software for business and clinical applications, but software for the integration of digital sensors is the most requested application.

The technology research company released its Dental Software Buyer View 2014, emphasizing three key statistics:

- 93% of prospective dental software buyers seek out integrated suites that incorporate multiple applications into one software package.
- 51% still rely on manual methods, and 30% use paper exclusively.

- 18% are looking for software for device and/or digital sensor integration.

“Many practitioners still use manual methods partly because the incentives for dentists to go paperless are not as compelling or clear as they could be,” the report said.

SoftwareAdvice.com said confusion within dentistry over electronic health records (EHR) also affects decisions to consider paperless options. “This confusion could be prompting some dentists to explore electronic options without making the leap to adopt the technology. That could especially be the case for more senior dentists, who need extra convincing about the merits of using software.”

#### **CONCLUSION**

There are lots of software that are available in the market today. Lots of software companies are providing custom software for the clients. Key thing to identify good dentist software is their quality, price and guarantee. Some of Dentist software justifies the latest technology at reasonable price. In overall Dental hospital management software is very effective dental practice management system from individual dentist to large scale dental hospitals due to its numerous possibilities and features. For choosing the best management software for practice, the dentists should have many things in mind, but the most important is whether the software fulfils the specific need of the dental practitioner. Another important advice to be considered the usage of special format and degree in which the special format will satisfy the practitioner’s requirements.

#### **Bibilography**

1. Delrose, D.C. et R.W. Steinberg. The clinical significance of the dental patient record.- *J. Am. Dent Association.*, 2000
2. Atkinson J. et al. Electronic patient records for dental school clinics: more than paperless systems-*Journal of dental education*, 66, 2002
3. Schleyer T.H. Spalleket M.H. Torres Urquidy. A profile of current internet users in dentistry
4. Kirschner M. The role of information technology and informatics research in the dentist-patient relationship. – *Adv. Dent. Res*, 17, 2003
5. Zimmerman, J.L., M.J. Ball et S.P. Petrovski . Computers in dentistry . *Dent clin. North Am.*, 30, 1986, Vol- 10
6. Heid , D.W., J. Chasteen et A.W.Foorrey. The electronic oral health record.- *J. Contemp. Dent.Pract.*, 2002, Vol-1
7. ADA Specification 1004: Computer software performance for dental practice software . New York: American national standard institute, 2001
8. Chen, J. et al. Teledentistry and its use in dental education.- *J. Am. Dent. Assoc.*, 134, 2003, Vol-3
9. Schleyer, T. et L.A. Johnson – Evaluation of educational software - *Journal of dental education*, 67, 2003, Vol- 11
10. Hurston - Anderson, I. Integrated office technology: how technology can help improve office efficiency- *J. Am. Dent. Assoc.*, 2004, Vol- 10