

Digitization Of Dental Records And Its Application In Forensic & Legal Perspective: Knowledge, Attitude And Practice Among The Dentists In West Bengal

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Abstract: Background: Stepping into the twenty-first century, the computer technology has become an integral part of the clinical practice of dentistry. Dental practitioners should have thorough knowledge of dental records as it has a legal and forensic implication with respect to identification of missing and deceased individuals, settlement of insurance claims, etc. Aim: The aim of the present study is to assess and evaluate the knowledge, attitude and practice of accurate dental records and the need of digitization among the dentists. Materials and Methods: A cross-sectional survey was conducted among 242 dentists from West Bengal with relevant questions focusing on awareness of dental record maintenance, its importance and its need for digitization. The data were summarized and were subjected for descriptive statistical analysis. Results: Only 65.7% of dentists maintained dental records regularly in their clinical practice. 37.2% were aware about the time-period for maintaining dental record and 64.9 % were aware that they have a professional and a legal obligation to maintain clinically relevant, accurate dental records of patients. Lastly, 82.6% preferred in digitizing & archiving dental records. Conclusion: The study demonstrates a need of proper awareness of dental records & its maintenance among fellow dentists. Also, it demonstrates the trend towards increased adoption of digital platforms for dental record management. [Kundu A Natl J Integr Res Med, 2020; 11(2):64-69]

Key Words: Dental Records, Digital Patient Records, Forensic Odontology, Medicolegal practices, Survey, Dentists

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Introduction: The dental record is an official and a legal document owned by the dentist comprising of general information of a patient, that includes diagnostic and clinical information, treatment performed and patient-related communications, and also consent to any treatment¹. It also contains detailed information of the patient's general health, as well as dental status and any patients' concerns and requests². With increase in awareness of legal issues and cases of malpractices, having a thorough knowledge of dental records is essential for a dental practitioner. The ability of clinical practitioners to produce and maintain accurate dental records is also essential for good quality patient care³. Dental records can also be used for the purpose of forensic investigations, mainly for personal identification in cases of mass disasters & criminal profiling, as well as in medico-legal matters⁴. Record maintenance is legally mandatory in the American and European countries, but in India there is ignorance among the dentists with most of them maintaining a poor quality or no dental record at all⁵. With the advancement of digitization in dentistry, the

"digital dental record", can be useful with paperless charting system done on odontogram, with proper diagnostic, correspondence and financial records, further scheduling and so on. Later the recorded and saved data can be easily accessed by the doctor or staff members from any workstation^{6, 7}. Thus, the aim of the study is to assess the awareness and the knowledge of the dentists from West Bengal regarding its importance in forensic & legal perspective and a need for digitization through questionnaire survey.

Material & Methods: Study Design and Sample: A questionnaire survey was conducted among randomly chosen 300 dentists in West Bengal district, India. The dentists were approached and explained about the purpose of study telephonically, 242 of them gave verbal participatory consent and fixed the schedule with investigator. A self-reported, validated pretested close-ended questionnaire in English language was employed after pilot survey. The questionnaire comprised of 15 questions to assess the KAP of practicing dentists (Table-1).

Table 1: Questionnaire Used In The Study:

Q: Dental Record includes-

A:

- Patient’s information, medical & dental history
- Study cast, photographs & x-rays
- Referral notes, consent forms
- All of the above

Q: Do you maintain dental records regularly in your practice?

A: Yes/No/Maybe

Q: In which format do you record dental data of patients in your practice?

A:

- Manually on prescription pad/pre-printed paper forms
- Digitally in electronic media/device
- Both
- Do not record data

Q: Are you aware about "ODONTOGRAM"?

A: Yes/No/Maybe

Q: Do you retain digital /printed copy of photographs & radiographs?

A: Yes/No/Maybe

Q: Do you have a separate area for storage & maintenance of dental records?

A: Yes/No/Maybe

Q: Do your teaching curriculum / syllabus include maintaining dental records at academic level?

A: Yes/No/Maybe

Q: Are you aware about the time period for maintaining dental record?

A: Yes/No/Maybe

Q: Do you know you have a professional and a legal obligation to maintain clinically relevant, accurate dental records of your patients?

A: Yes/No/Not aware

Q: Dental Record will help in –

A:

- Understanding patient’s dental status
- Identifying individuals in crime & mass disaster
- Medico-legal cases
- All of the above

Q: Do you have internet access in your practice?

A: Yes/No/Maybe

Q: Do you prefer digitizing & archiving dental records?

A: Yes/No/Maybe

Q: Do you think, Dental data recording digitally will increase the efficiency of a dental practice?

A: Yes/No/Maybe

Q: Do you think, Dental data recording digitally will provide ease in maintaining and keeping records?

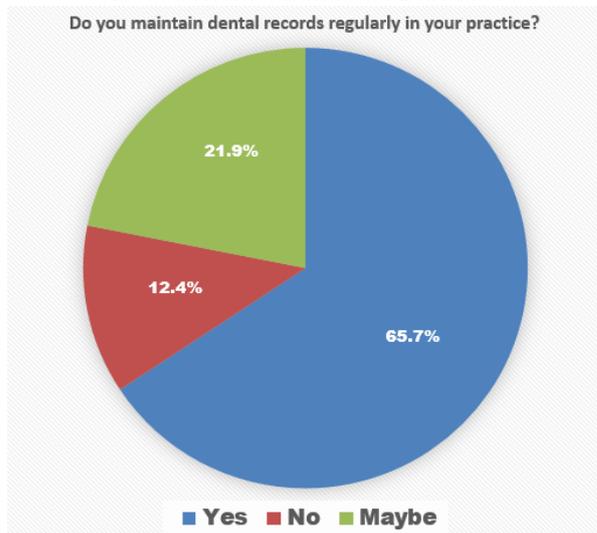
A: Yes/No/Maybe

Q: Do you think, the process of dental data recording digitally is easier for dental professionals to learn and use?

A: Yes/No/Maybe

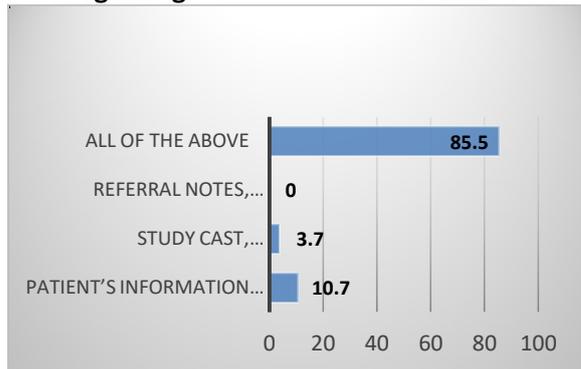
Results: Out of the 300 dentists, only 242 responded and the overall response rate was 80.66%. Among the practicing dentists, 65.7% maintained dental records regularly in their clinical practice whereas 12.4% did not record dental records regularly (Figure-1).

Figure 1: Pie Chart Showing Practice For Dental Record Maintenance Of Dentists.



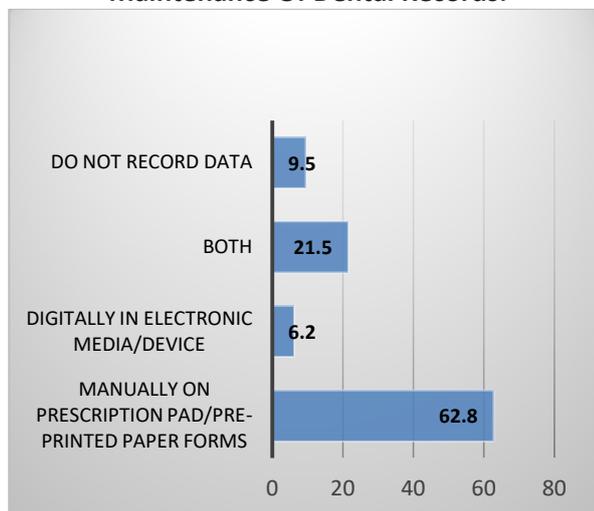
When asked about checklist of dental records, 85.5 percent selected all of the records that included patient’s information, medical & dental history, study cast, photographs & x-rays and also Referral notes, consent forms. Thus, it showed that the maximum practicing dentists have the basic idea related to dental records (Figure-2).

Figure 2: Chart Showing The Knowledge Regarding Dental Record Maintenance:



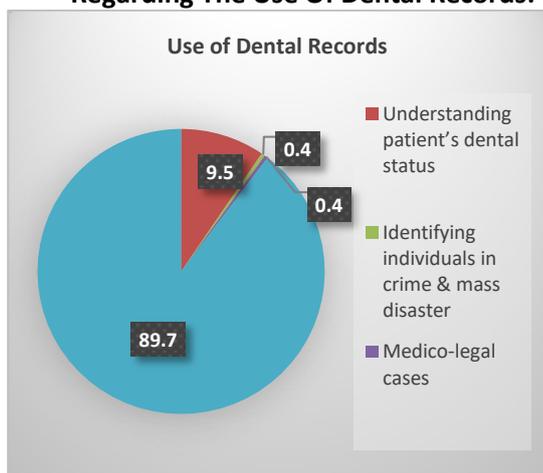
It was also noted that 62.8 % dentists maintained dental records manually on prescription pad/pre-printed paper in manual format and only 6.2 % used electronic media/device. It was also observed that 21.5 percent uses both-manual and digital format (Figure-3).

Figure 3: Chart Showing The Way Of Maintenance Of Dental Records:



This study shows, 89.7% dentists knew that dental records can be used for understanding patient’s dental status, identifying individual in crime & mass disaster and even in medico-legal cases (Figure-4).

Figure 4: Chart Showing The Knowledge Regarding The Use Of Dental Records:



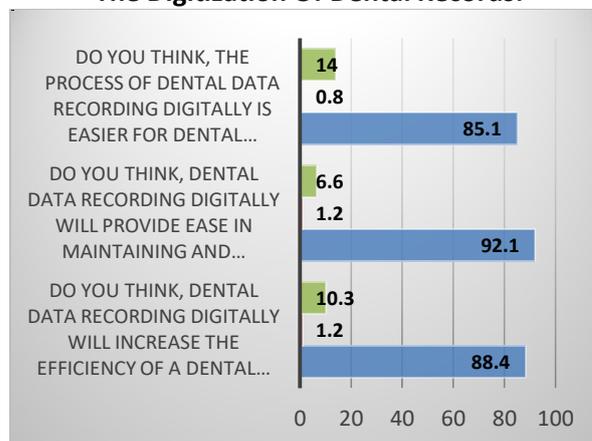
31.8% dentists were also aware about the term “odontogram”. 47.5 % retained the digital /printed copy of photographs & radiographs and 50.8% had a separate area for storage & maintenance of dental records.

In the survey, it was evident that 47.5 percent included maintaining of dental records in their teaching curriculum / syllabus at academic level.

64.9 % were aware about the professional and a legal obligation to maintain clinically relevant, accurate dental records of patients and 37.2 % were aware about the time-period for maintaining dental record. It was also observed that 71.5% had internet access in their practice and 82.6% preferred digitizing & archiving dental records.

It was also observed that 88.4 % dentists agreed for recording dental data digitally that shall increase the efficiency of a dental practice. Moreover 92.1 % mentioned about ease in maintaining and keeping records digitally than conventional means and 85.1 % stated its use and its application to be much easier.(Figure-5).

Figure 5: Chart Showing The Attitude Regarding The Digitization Of Dental Records:



Discussion: Dental record plays an important role in various aspects of clinical practice, in forensic cases and criminal investigations, also for dental identification in cases of mass disasters. It also has a vital role in academics and in research activities too. Thus, the production, retention, and retrieval of accurate patient records shall be an essential responsibility of the dentist ethically and also forensically⁸.

Generally, dental records consist of a variety of material generated and stored in handwritten and electronic format that includes - Prescriptions/notes made by clinicians and staff members, past and present medical history, consent forms, copies of laboratory correspondence, radiographs and photographs, diagnostic test reports, etc⁹. A complete accurate dental record could also be a means of communication between current dentist and other specialists who shall provide the further treatment or in cases of future referrals. The

confidentiality of dental records is another aspect which is to be considered during maintaining the records; information should be given only with a written consent and it is essential to keep a photocopy in each case.

Ownership of Dental Records: The owner of the dental practice is usually the legal owner of the dental records. The records should never be released by the dentist unless the patient demands for it. Apart from this, the dental records can also be given in following cases¹⁰:

- Referring cases to another practitioner either for consultation or treatment
- Demanded by the court in cases of medico-legal issues.
- On request of the police
- When asked for by income tax authorities or insurance companies.

Maintenance of Dental Records: Different countries follow different guidelines according to the rules and regulations of their land regarding the duration for preservation of records which vary.

According to Revised Dentists (Code of Ethics) Regulations – 2014, a dental record should be maintained for a minimum three years by the dentist from the date of onset of the treatment as determined by the Council or accepted as a standard mode of documentation¹¹.

According to Australian Dental Association, dental records should be retained for at least seven years from the last occasion on which a health service was provided to the individual by the health service provider, while the individual was an adult. For an individual who is under the age of 18 years dental records should be kept for at least until the individual has attend the age of 25 years⁹.

As mentioned by Devadiga et al., The Department of Health (DH) for National Health Service (NHS) organizations in England, community dental records should be maintained for a period of 11 years for adults and children until the patient is 25 years old, whichever is longer. Hospital records are to be maintained for a period of 8 years in adults and until the child attains 25 years of age, and 8 years after their death¹. The results show that there is knowledge about maintenance of dental records and its

application in forensics among the dentists, but more awareness should be generated. In a similar study conducted by Astekar et al. in different cities of Rajasthan states that, 38% of the dentists maintained the records & they were aware that maintaining the dental records is medico-legally important. But 32% of all the dentists recorded general details of the patient and medical history¹². According to the study done in Chennai by Preethi et al., 93% dentists did not preserve records for more than 7 years¹³.

In a study done among dental practitioners of Pune city by Sarode, et al., 83% record case history manually in pre-printed forms whereas 6% of the practitioners record it manually on a blank page, while the remaining 11% record the case history digitally¹⁴. Students in college maintain proper dental records than private practitioners as noted by the study by Waleed et al.¹⁵. 17 out of 20 disaster cases, involved the use of dental ante-mortem data for victim identification. Dental ante-mortem data was used for the identification of all the victims in the Kentucky air crash. In the Newark air crash (76%), followed by the Nepal air crash (71.42%), the France air crash (65.88%), the Australian bushfire (63.63%), and the Estonia ferry disaster (60.63%), the highest percentage of victim identification was done using the dental ante-mortem data¹⁶. The dental evidence is given importance for the identification of fire victims, in western countries where 34% to 89% success rate is obtained in cases of individual identification¹⁷. According to a study by Petju et al.¹⁸, dental records were the primary factor for identification for 46.2% of the victims of the Indian Ocean tsunami disaster in Thailand in 2004.

Many international questionnaire surveys were also conducted; one of them done by Dierickx, et al. in Belgium concluded young dentists maintain records properly than the experienced practitioners¹⁹. A study conducted by Al-Azri, et al. in Australia demonstrates that dental practitioners in Australia have reasonable awareness regarding the antemortem record maintenance²⁰.

Why Digital Record? Electronic health records over the past two decades have brought about rapid advancement of information and communication technology worldwide. Electronic dental records have been developed, implemented, and widely used among dental

professionals in developed countries because of their proven usefulness and improvements in the quality of patient care²¹. Improper data-recording methods can contribute to incorrect or incomplete patient information, which may not only leave practitioners vulnerable in the event of a legal challenge, but may result in an ill-conceived treatment plan. Inaccuracy may result from the unclear handwriting of dental professional on paper based dental records; but with digital charting, all dental team members can chart the same way, and the charting can be standardized⁶. If patients' dental records are to be improved, the move to electronic record keeping should be embraced as it helps in:

- Providing accurate, up-to-date and complete information about patients
- Enabling quick access to patient records
- Enabling safer, more reliable prescribing with enhanced privacy and security of patient data
- Securely sharing electronic information with patients and other clinicians
- Going paperless helps to reduce cost
- Eliminates the chance of records to be misplaced

A study conducted in Australia, in which electronic health records were perceived to provide more accurate and more complete information than paper-based dental records²². However, in developing countries, many challenges have been identified regarding the use of digital dental records. Implementation of Electronic Dental Recording systems is challenging for dentists because most dental clinics are small; hence, they do not want to invest a lot of money. Moreover, they face further challenges such as ethical issues; such as, privacy can be breached when data is shared or linked and trust can be lost when proper security measures are not applied²³.

Conclusion: The study demonstrates a need of proper awareness of dental records & its maintenance among fellow dentists. This condition, however, could be improved by increasing awareness and proper practice of dental record maintenance during bachelor of dental surgery course. In addition, periodic conferences and seminars if conducted would help the dental practitioners and students enrich their knowledge about dental records and application in forensics & legal perspective. The

job of the dentist is not just to keep the records but also to know about the time period to maintain it and also the advantages of maintaining it. With the advancement in computing and digitization of information, there is developmental changes in the profession of dentistry in numerous ways; a digital platform must be developed and modified to maintain the uniformity in dental record charting and should be standardized. Along with this, a statutory body should be formed to conduct a regular check on maintenance of proper dental records.

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