

# Quality in filling out clinical records by students of a Brazilian Dentistry school


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**Abstract** The dental record is an important medical and legal document for the proper registration of the services provided by the dental professional and it is essential for better longitudinal monitoring of the patients' oral health condition. The skills necessary for its adequate completion should be developed by students from the start of their clinical practice in professional training centers. This study evaluated the quality of filling out dental clinical records by students from different stages of clinical practice at the Pediatric Dentistry clinic, Dentistry School from UFMG (Federal University of Minas Gerais) in Brazil. Data were collected through dental records of patients assisted between the second semester of 2013 and the second semester of 2019. The registration quality was analyzed descriptively and characterized as fully, partially, or not filled out. Then, a bivariate analysis assessed the completion quality by students from third and sixth semesters ( $p < 0.05$ ). Of the 296 dental records analyzed, none showed adequate completion of all sections. The main failures observed were incomplete data in the free and informed consent form (75%), in the gingival bleeding index (72.9%) and in the oral condition diagnosis (68.6%). Additionally, patient identification was incomplete in 51% of the dental records. There was no statistically significant difference when comparing students from third and sixth semesters. These results highlight failures in filling out dental records, which continued throughout the students' formation. Therefore, they emphasize the need for awareness-raising strategies among students and teachers, aiming at the adequate maintenance of these records due to their ethical, legal, and scientific relevance.

**Descriptors:** Records. Health Services Administration. Data analysis. Dental Education. Dental Records.

## Calidad del llenado de fichas clínicas por estudiantes de una Facultad de Odontología brasileña

**Resumen** La ficha odontológica es un documento médico-legal importante para el adecuado registro de los servicios prestados por el profesional y es fundamental para el mejor seguimiento longitudinal de la salud oral. La competencia para llenarla adecuadamente debe ser desarrollada por los estudiantes desde el inicio de su práctica clínica, en el ámbito docente. Este estudio evaluó la calidad del llenado de fichas odontológicas por estudiantes de diferentes niveles de formación en prácticas clínicas de Odontología Pediátrica de la Facultad de Odontología de la Universidad Federal de Minas Gerais, Brasil. Los datos se recolectaron a través de fichas clínicas de pacientes atendidos entre el segundo semestre de 2013 y el segundo semestre de 2019. La calidad del llenado se analizó de forma descriptiva, categorizando las secciones de la ficha clínica como completas, parciales o no llenadas. Posteriormente, un análisis bivariado evaluó la calidad del llenado por estudiantes del 3.º y del 6.º período ( $p < 0,05$ ). De las 296 fichas clínicas analizadas, ninguna presentó un llenado adecuado de todas las secciones. Las principales fallas observadas fueron: datos incompletos en el consentimiento informado (75 %), en el índice de sangrado gingival (72,9 %) y en el diagnóstico de la afección bucal (68,6 %). Además, el 51 % de las fichas tenían datos de identificación de los pacientes parcialmente llenados. No hubo diferencia estadísticamente significativa en la calidad del llenado de fichas entre los estudiantes del 3.º y 6.º período. Los presentes resultados resaltan fallas en el llenado de fichas odontológicas que continuaron durante toda la formación de los estudiantes. Por lo tanto, se enfatiza la necesidad de estrategias de sensibilización de estudiantes y

docentes, visando el adecuado mantenimiento de estos registros, debido a su relevancia ética, jurídica y científica.

**Descritores:** Fichas clínicas. Administración de Servicios de Salud. Análisis de datos. Educación en Odontología. Registros odontológicos.

### **Qualidade de preenchimento de prontuários clínicos por estudantes de uma Faculdade de Odontologia brasileira**

**Resumo** O prontuário odontológico é um documento médico-legal importante para o registro adequado dos serviços prestados pelo profissional, sendo fundamental para o melhor acompanhamento longitudinal da saúde bucal. A competência para seu adequado preenchimento deve ser desenvolvida pelos alunos desde o início de sua atuação clínica, no ambiente de ensino. Este estudo avaliou a qualidade de preenchimento de prontuários odontológicos por alunos em diferentes níveis de formação, nas atividades clínicas de Odontopediatria, da Faculdade de Odontologia da Universidade Federal de Minas Gerais, Brasil. Os dados foram coletados através dos prontuários de pacientes atendidos entre o segundo semestre de 2013 e o segundo semestre de 2019. A qualidade de preenchimento foi analisada descritivamente, categorizando as seções do prontuário como totalmente, parcialmente ou não preenchidas. Posteriormente, uma análise bivariada avaliou a qualidade de preenchimento por alunos do 3º e 6º períodos ( $p < 0,05$ ). Dos 296 prontuários analisados, nenhum apresentou o preenchimento adequado de todas as seções. As principais falhas observadas foram: dados incompletos no termo de consentimento livre e esclarecido (75%), no índice de sangramento gengival (72,9%) e no diagnóstico da condição bucal (68,6%). Adicionalmente, 51% dos prontuários tinham os dados da identificação dos pacientes parcialmente preenchidos. Não houve diferença estatisticamente significativa na qualidade de preenchimento dos prontuários entre alunos do 3º e 6º períodos. Os presentes resultados evidenciam falhas no preenchimento dos prontuários odontológicos, que se mantiveram ao longo da formação dos alunos. Sendo assim, ressaltam a necessidade de estratégias de sensibilização dos corpos discente e docente, objetivando a manutenção adequada destes registros, por sua relevância ética, legal e científica.

**Descritores:** Prontuários. Administração de Serviços de Saúde. Análise de dados. Educação em Odontologia. Registros Odontológicos.

## **INTRODUCTION**

The dental record is an essential component of competent and quality oral health care<sup>1</sup>. The records prepared by dental surgeons must contain appropriate sections to report each step of dental care<sup>2</sup>. The maintenance of accurate dental records is important for better patient care, it is fundamental from an ethical and legal standpoint, and it also contributes to the production of knowledge, when used as a research instrument<sup>1,3,5</sup>.

In Brazil, the Code of Dental Ethics created by the Federal Council of Dentistry, in Chapter VII, Art.17, contemplates the importance of the dental record as a legal document, and the dental surgeon is responsible for preparing and keeping it legible and updated with relevant information from each visit or procedure<sup>6</sup>.

Dental schools play a fundamental role in developing students' skills for the proper filling of clinical records and, consequently, a proper record of the patients' health condition<sup>2</sup>. So, it is essential that these competences be stimulated and worked on with undergraduate Dentistry students with the goal of incorporating the practice in a more natural way during their formation<sup>4</sup>.

The Department of Oral Health for Children and Adolescents (SCA), at the School of Dentistry (FAO) of Federal University of Minas Gerais (UFMG), Brazil, offers two mandatory disciplines in which pediatric dental visits are available. In their third semester, students have their first contact with patients, conducting clinical exams and preventive procedures related to caries and other oral conditions in recurring preventive visits. When patients need

curative treatment, they are referred to students in their sixth semester, who conduct curative and preventive procedures. After the curative treatment, patients are called for periodic preventive visits with students from the third semester.

As appointments for both disciplines are scheduled based on data collected from dental records, their proper completion is essential. Then, the maintenance of correctly completed dental records contributes not only to the longitudinal follow-up of patients but also to dentistry teaching. Thus, this study evaluated the completion quality of the records of patients treated at the FAO UFMG Pediatric Dentistry clinic. The quality of completion by students in their third and sixth semesters was also compared. The hypothesis is that the skills for filling out dental records are acquired at the beginning of the course and maintain a similar quality among students at different stages of training.

## METHODS

### *Study Design*

This census-type transversal study was carried out at UFMG's Dentistry School (FAO UFMG). Data were collected through the dental records of patients treated between the second half of 2013 and the second half of 2019.

### *Sampling and eligibility criteria*

From the extension project database that organizes the flow of patients between the disciplines, the dental records of patients treated at the Pediatric Dentistry clinic were considered eligible for the research as of the second semester of 2013, when the activities of the third semester discipline began, up to the second semester of 2019 (the last semester prior to the temporary halt of services due to the COVID-19 pandemic). For the record to be included in the study, it must contain the informed consent form (ICF) signed by the person responsible for the patient; it must belong to patients who had their first visit through one of the mandatory SCA disciplines; and whose patients were discharged at least after the first appointment, having attended the preventive recurring appointment. Records with missing pages were excluded from the study.

### *Ethical Considerations*

This project was approved by the Human Research Ethics Committee of the Federal University of Minas Gerais, Brazil (CAAE: 44625221.4.0000.5149), according to National Health Council Resolution 466/12. Note that, in all dental records, an informed consent is already available in which those responsible for the patients agree to the use of the information for scientific research.

### *Calibration and pilot study*

The calibration of the researcher responsible for data collection (LCR) was carried out in two stages under the guidance of a gold-standard researcher (SMA). The first stage consisted of theoretical training on the aspects to be evaluated regarding the proper completion of dental records. Subsequently, 15 dental records were analyzed by the researcher and by the gold-standard researcher to determine the inter-examiner agreement (inter-examiner Kappa: 0.881). The researcher performed an evaluation of the same records after two weeks to verify intra-examiner agreement (intra-examiner Kappa: 0.888). For the calibration process, dental records of patients who did not meet the eligibility criteria for this study were used. The researcher's calibration process also served as a pilot study to test the methodology to be used for data collection, and it was observed that no changes were necessary in the methodology.

### *Data collection*

Clinical records of the Department of Oral Health for Children and Adolescents mandatory disciplines at FAO UFMG are printed and manually filled out by undergraduate students, under the supervision of advising professors. Dental records contain information from two sources: parents/guardians report (which includes personal identification, medical history, family history, dental history, declaration of responsibility for the information provided, and food

diary) and the clinical examination performed and registered by students (which includes general physical examination, clinical examination of the oral cavity, Visible Plaque Index – VPI, Gingival Bleeding Index – GBI, diagnosis of oral condition and treatment planning). There is also a section in which students describe the procedures carried out in the visit. The records contain sections with several fields to be filled out, including both the selection of predetermined options and the possibility of writing down extra information in full. Parents/guardians sign an informed consent form (ICF) at the beginning of the treatment and, at the end of each clinical visit, they sign confirming the procedures performed. The advisors also sign confirming the procedures. The current student's term who is responsible for filling out the record is also identified in the proper field.

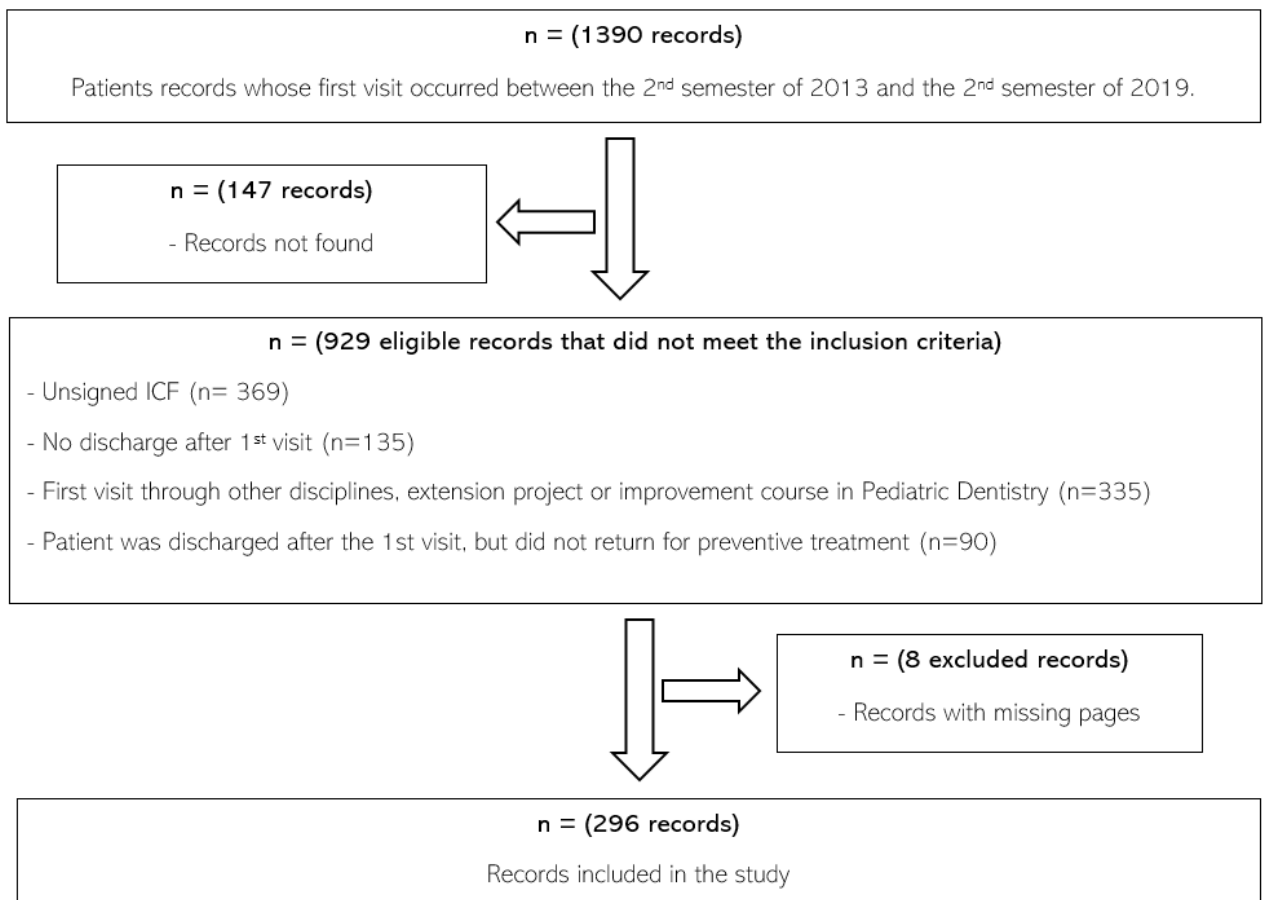
Completion quality was assessed by comparing the data contained in the selected dental records with those defined by the team of researchers in a "gold standard" dental record. The assessment was based on the completion of all relevant fields in each section and categorized as fully, partially, or not completed. This analysis included data related to the completion of the dental record at the patient's first visit.

### Statistical analysis

Data were stored, and descriptive analyzes were performed using the SPSS for Windows program (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). First, descriptive analyses were performed to map the quality of dental record data completion. Then, the chi-square test (linear by linear association) was used to compare the completion quality by students in their third and sixth terms, with a 5% level of statistical significance.

## RESULTS

Of the 1390 dental records of patients, 296 met the inclusion criteria (Figure 1), 141 (47.6%) belonged to female patients, and 155 (52.4%) were male patients records.



**Figure 1.** Flowchart explaining the final sample.

Among the 296 dental records, 99 (33.4%) were filled out by students in their third term and 119 (40.2%) by students in their sixth term. It was not possible to identify the term from the student responsible for filling out the form in 78 dental records (26.4%). As to completion quality, none of the dental records were completed in all sections. When sections were considered individually, a wide variation in completion quality was observed (Table 1). Moreover, no statistically significant difference was observed between the quality of completion by students in their third and sixth semesters (Table 2).

**Table 1.** Completion quality of dental records from the Pediatric Dentistry clinic at the Department of Oral Health of Children and Adolescents (SCA) (n= 296)

Sections of dental record	Completion quality			
	Fully filled	Partially filled	Not filled	Absent
	n (%)	n (%)	n (%)	n (%)
Identification	145 (49,0)	151 (51,0)	-	-
Medical History	178 (60,1)	11 (39,5)	1 (0,3)	-
Dental History	244 (82,4)	52 (17,6)	-	-
General Physical Examination	112 (37,8)	179 (60,5)	5 (1,7)	-
Oral Cavity Examination	98 (33,1)	194 (65,5)	4 (1,4)	-
Person in charge statement	282 (95,3)	14 (4,7)	-	-
ICF <sup>1</sup>	72 (24,3)	224 (75,7)	-	-
GBI <sup>2</sup>	57 (19,3)	216 (72,9)	23 (7,8)	-
VPI <sup>3</sup>	214 (72,3)	59 (19,9)	23 (7,8)	-
Diagnosis of oral condition	60 (20,3)	203 (68,6)	21 (7,1)	12 (4,1)
Procedures performed	265 (89,5)	27 (9,1)	4 (1,4)	-

<sup>1</sup> ICF – Informed Consent Form; <sup>2</sup> GBI – Gingival Bleeding Index; <sup>3</sup> VPI – Visible Plaque Index

## DISCUSSION

The responsibility for properly filling out dental records and paying attention to ethical issues that involve this process is often neglected compared to other technical skills required from students.

Of the initially eligible dental records, 369 (26.5%) did not have the informed consent signed by the person in charge of the patient and could not be included in the study. We also observed that in 75.7% of the sample records, the informed consent was partially completed, lacking information such as the patient's name, the name of the person responsible for the patient, or the date of completion. This finding is alarming from an ethical-legal standpoint, considering that they are minors undergoing dental treatment, which must be duly authorized by the person in charge<sup>1</sup>. Similar results were observed in a Nigerian study, in which the non-collection of the consent form was the most frequent aspect observed among dental records filled out by dental college students<sup>7</sup>.

On the other hand, 95% of the declarations of responsibility for the information provided were fully completed in the present study, including the signature of the person in charge. As the statement is inserted sequentially, at the end of the patient's anamnesis, and on the same sheet, this aspect might have contributed to almost all signatures being collected in this section, unlike the ICF, which is presented on a non-sequential sheet of the dental record. The insertion of the ICF together with the statement of responsibility and its formatting on the same page can be a strategy for its proper completion.

No record had all sections completely filled out. Similar results were found in a Spanish study that used an instrument to assess the quality of filling out dental records. It involved 46 pre-established criteria based on the bibliography and the consensus of the researchers. A low level of completion was observed in all quality criteria, and none of the 50 dental records evaluated was adequately completed<sup>7</sup>.

**Table 2.** Completion quality of clinical record from Pediatric Dentistry clinic at the Department of Oral Health of Children and Adolescents (SCA) in relation to the semester of the student responsible for filling it out (n= 218).

Sections of dental record	Semester of the student responsible for filling it out		p-value*
	3 <sup>rd</sup> semester n (%)	6 <sup>th</sup> semester n (%)	
<i>Identification</i>			
Fully filled	45 (45,5)	61 (51,3)	0,394
Partially filled	54 (54,5)	58 (48,7)	
<i>Medical history</i>			
Fully filled	64 (64,6)	65 (54,6)	0,187
Partially filled	34 (34,3)	54 (45,4)	
Not filled	1 (1,0)	0 (0,0)	
<i>Dental history</i>			
Fully filled	78 (78,8)	96 (80,7)	0,731
Partially filled	21 (21,2)	23 (19,3)	
<i>General physical examination</i>			
Fully filled	38 (38,4)	48 (40,3)	0,969
Partially filled	61 (61,6)	69 (58,0)	
Not filled	0 (0,0)	2 (1,7)	
<i>Examination of the oral cavity</i>			
Fully filled	29 (29,3)	41 (34,5)	0,341
Partially filled	69 (69,7)	78 (65,5)	
Not filled	1 (1,0)	0 (0,0)	
<i>Statement from the person in charge</i>			
Fully filled	97 (98,0)	112 (94,1)	0,154
Partially filled	2 (2,0)	7 (5,9)	
<i>ICF<sup>1</sup></i>			
Fully filled	19 (19,2)	33 (27,7)	0,142
Partially filled	80 (80,8)	86 (72,3)	
<i>GBI<sup>2</sup></i>			
Fully filled	29 (29,3)	21 (17,6)	0,063
Partially filled	67 (67,7)	94 (79,0)	
Not filled	3 (3,0)	4 (3,4)	
<i>VPI<sup>3</sup></i>			
Fully filled	82 (82,8)	93 (78,2)	0,393
Partially filled	14 (14,1)	21 (17,6)	
Not filled	3 (3,0)	5 (4,2)	
<i>Procedures performed</i>			
Fully filled	86 (86,9)	111 (93,3)	0,151
Partially filled	12 (12,1)	7 (5,9)	
Not filled	1 (1,0)	1 (0,8)	

<sup>1</sup> ICF – Informed Consent Form; <sup>2</sup> GBI – Gingival Bleeding Index; <sup>3</sup> VPI – Visible Plaque Index; \* Chi-square test (Linear by linear association)

Considering the 296 records, in most of them, medical and dental history sections were fully completed and the extra and intraoral examination sections were partially filled. It is possible that the sections referring to medical and dental history have a better filling pattern due to the fact that the formatting of these sections consisted mostly of multiple choices, making it easier to fill in, while the extra and intraoral examination sections basically required written down notes. In addition, in the medical and dental histories, the student responsible for the service writes down the answers of those responsible for the patient directly in the dental record. In the sections referring to the exams, the student responsible for the service takes on the role of examiner, and annotation is carried out by an assistant student. It is possible that doubts regarding the extra and intraoral clinical examination, and the filling out by an assistant colleague



may compromise its quality. This fact also alerts to a lack of standardization in the execution of the clinical examination, which may be reflected in an incomplete dental record.

Also, in most dental records, the Visible Plaque Index (VPI) section was completely filled out, and the Gingival Bleeding Index (GBI) section partially filled out. Considering that the indexes are performed in the same session, a probable explanation for the lower adherence to filling out the GBI could be the higher number of information collected during its execution, compared to the VPI, besides the difficulty that can be found by students in measuring this index in younger children.

The completion quality of the dental record sections did not differ statistically between students in the third and sixth periods. The initial hypothesis was that the quality of the dental records would be adequate and constant throughout the students' formation, but failures in completion were observed in both terms. A greater motivation for the proper completion and maintenance of dental records should be implemented at the beginning of the course with the students of the third period, who are being inserted in the processes related to the clinical care of patients.

The continued motivation of students can contribute to improving the quality of filling out dental records. A previous study, carried out in England, evaluated the pattern of clinical record keeping by undergraduate students in a dental school. The initial evaluation showed that the most frequently absent information was the identification of the patient care sector, followed by illegible signatures of the student and professor. The results of this initial evaluation were presented to the students during a teaching session, aiming at improving the procedure. Subsequently, a new evaluation of the records was performed. The results of the second evaluation showed an improvement in completion quality, probably due to the fact that the students knew that the dental records would be examined<sup>4</sup>. In this sense, the role of the advisors, not only supervising the clinical service per se, but also ensuring the proper completion of dental records, seems to be fundamental for this practice to be incorporated naturally throughout the dentists' formation.

A systematic review showed that there are few studies on the effectiveness of methods for teaching dental record keeping skills. Although several strategies can be used, including traditional lectures, the use of checklists or models and peer-led learning, it was not possible to identify which method would be more successful<sup>3</sup>. Thus, it is necessary that the importance of the proper completion of medical records be routinely discussed with the students throughout the course.

Similarly to this study, previous studies have also highlighted the need for additional education and awareness on the importance of properly maintaining dental records<sup>5,9</sup>. Strategies such as audits, followed by educational processes and training, have been shown to be effective in improving completion quality<sup>10,11</sup>.

Extra formation can be attained with the inclusion of Forensic Dentistry in undergraduate and graduate courses, and in continuing professional education. The access of dental professionals to knowledge, to the awareness about the importance of the applicability of dental records<sup>5</sup> can contribute to an improvement in the maintenance of these records. In fact, an Australian study observed that few dental schools included the topic related to Forensic Dentistry in their curriculum and, when they did, this was done with a reduced workload. However, the issue of dental record keeping was addressed through lectures and practical sessions in all schools participating in the study<sup>12</sup>. Thus, it is necessary to establish national and international standards for dental records that meet contemporary trends in the health area and the requirements of Forensic Dentistry<sup>5</sup>.

These results reinforce the need to expand research on this topic, not only to check the quality of filling in dental records, but also to determine whether training interventions in maintaining these records result in changes in the practice of dental students and, consequently, contribute to the better treatment of patients<sup>3</sup>. In this sense, the present study makes an important contribution to teaching practices by enabling the identification of flaws in the completion process and, consequently, highlighting the need to establish strategies to sensitize students and improve the quality of supervision by teachers. It also contributes to the reflection on the layout and formatting of dental records, and the need for their simplification without compromising the quality of the information collected.

Alternatives such as the implementation of digital forms, with tools that do not allow gaps in filling, could be implemented<sup>1</sup>. The use of digital dental records allows the improvement of efficiency, productivity, and the gathering of different records of the same patient in a single place, facilitating the access by different professionals. It also facilitates communication between professionals, contributing to the longitudinal follow-up of patients and to the conduction of research<sup>13-15</sup>. This aspect is extremely relevant for clinical care performed in academic dentistry environments such as FAO UFMG, where the patient is often in contact with more than one student and one professor during their treatment. However, as reported by Atkinson et al., the needs of educational institutions are much more complex than those of private dental practices. Considering that the system is used by several people in an educational center, it must be simple and easy to use so that it is well accepted by the academic community<sup>13</sup>.

The maintenance of dental records is necessary to ensure the adequate and systematic flow of patients' treatment plan, contributing to the improvement of services provided to the community. It is also essential for medical and legal reasons,<sup>4</sup> as inadequate documentation of dental care hinders the dentist in legal proceedings<sup>1, 5, 16, 18</sup>. In addition, the proper completion and storage of dental records can support the development of research, making an important contribution to undergraduate and graduate education.

This study had some limitations. Ideally, the evaluation of completion quality could be carried out with the same group of students, at different stages of their education. However, in 26.4% of the medical records, it was not even possible to identify in which term the student responsible for filling it out was, due to the absence of this information in the specific field, which highlights the difficulty of this evaluation.

## CONCLUSION

The present findings show failures in filling out dental records in the Pediatric Dentistry area of UFMG's School of Dentistry, which, unfortunately, did not change during the students' formation. Emphasis should be given to the need for strategies to raise awareness among students and faculty, aiming at the proper maintenance of these records, due to their ethical, legal, and scientific relevance.

## REFERENCES

1. American Academy of Pediatric Dentistry. Record-keeping. The Reference Manual of Pediatric Dentistry. Chicago, Ill. American Academy of Pediatric Dentistry; 2021:484-491.
2. Ríos Santos JVR, Martín García P, Segura Egea JJ, Fernández-Palacín A, Bullón Fernández P. Audit of dental reports (II): First Phase-II study in a Spanish Faculty of Dentistry. *Med Oral Patol Oral Cir Bucal* [Internet]. 2008;13(8):529-535.
3. Amos KJ, Bearman M, Palermo C. Evidence Regarding Teaching and Assessment of Record-Keeping Skills in Training of Dental Students. *J Dent Educ* [Internet]. 2015;79(10):1222–1229. doi: <https://doi.org/10.1002/j.0022-0337.2015.79.10.tb06016.x>
4. Pessian F, Beckett HA. Record keeping by undergraduate dental students: A clinical audit. *Br Dent J* [Internet]. 2004;197(11):703–705. doi: <https://doi.org/10.1038/sj.bdj.4811866>
5. Savić IP, Jonjić A, Maretić I, Dumančić J, Zymber AÇ. Maintenance of Dental Records and Forensic Odontology Awareness: A Survey of Croatian Dentists with Implications for Dental Education. *Dent J* [Internet]. 2021;9(4):37. doi: <https://doi.org/10.3390/dj9040037>
6. Conselho Federal De Odontologia. Código De Ética Odontológica. 2012.
7. Dosumu EB, Dosumu OO, Lawal FB. Quality of records keeping by undergraduate dental students in Ibadan, Nigeria. *Ann Ib Postgrad Med* [Internet]. 2012;10(1):13–17.
8. Martín García P, Ríos Santos JV, Segura Egea JJ, Fernández-Palacín A, Bullón Fernández P. Dental audit (I): Exact criteria of dental records; Results of a Phase-III study. *Med Oral Patol Oral Cir Bucal* [Internet]. 2008;13(7):407-420.
9. Kaul B, Gupta S, Vaid V, Kaul S. Emulating Odontolegal Practice: A Paradigm Shift in the Dental Practice Laying More Emphasis on Dental Records-A Perspective and Contemporary Study with a Reality Check.



- Int J Clin Pediatr Dent [Internet]. 2020;13(3):217-220. doi: <https://doi.org/10.5005/jp-journals-10005-1755>
10. King E, Shekaran L, Muthukrishnan A. Improving the quality of endodontic record keeping through clinical audit. *Br Dent J* [Internet]. 2017;222(5):373-380. doi: <https://doi.org/10.1038/sj.bdj.2017.223>
  11. Chong JA, Chew JK, Ravindranath S, Pau A. Clinical audit teaching in record-keeping for dental undergraduates at International Medical University, Kuala Lumpur, Malaysia. *J Dent Educ* [Internet]. 2014;78(2):206-212.
  12. Soon A, Graham J, Bassed R. Teaching of forensic odontology in basic dental programmes in nine Australian dental schools: A survey. *Eur J Dent Educ* [Internet]. 2019;23(3):244-250. doi: <https://doi.org/10.1111/eje.12425>
  13. Atkinson JC, Zeller GG, Shah C. Electronic Patient Records for Dental School Clinics: More Than Paperless Systems. *J Dent Educ* [Internet]. 2002;66(5):634-642.
  14. Abramovicz-Finkelsztain R, Barsottini CGN, Marin HF. Electronic Dental Records System Adoption. *Stud Health Technol Inform* [Internet]. 2015;216:17-20.
  15. Hadden AM. Clinical examination & record-keeping: Part 3: Electronic records. *Br Dent J* [Internet]. 2017;223(12):873-876. doi: <https://doi.org/10.1038/sj.bdj.2017.994>
  16. Speidel TM, Jerrold L. Record keeping to avoid or defend lawsuits: A defense attorney's perspective. *Am J Orthod Dentofacial Orthop* [Internet]. 2004;125(6):754-756. doi: <https://doi.org/10.1016/j.ajodo.2004.03.011>
  17. Brown LF. Inadequate record keeping by dental practitioners. *Aust Dent J* [Internet]. 2015;60(4):497-502. doi: <https://doi.org/10.1111/adj.12258>
  18. Souza-Oliveira AC, Paschoal MAB, Alvarenga-Brant R, Martins CC. Frequency of missing data in clinical records in pediatric dentistry: a descriptive study. *J Clin Pediatr Dent* [Internet]. 2023;47(1):44-49. doi: <https://doi.org/10.22514/jocpd.2022.034>

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