Evolution analysis of institutional clinical record filling after the implementation of risk management

Karyn Sabrina Marinho Umbelino*; Natália de Souza Silva**; Márcia Cristina da Silva***; Fernanda do Nascimento de Lemos Campos****; Luiz Fernando Lolli*****

* Graduated from the Dental School, State University of Maringá
** Undergraduate Student, Dental School, State University of Maringá
*** Resident, Public and Family Health Program, University of Maringá
**** MSc Student, Integrated Dentistry Program, State University of Maringá
***** Dentistry Course Coordinator, State University of Maringá


ABSTRACT
This documentary, longitudinal and quantitative study was carried out in order to evaluate the documentary evolution institutional clinical records after the implementation of risk management. In 2017, Legal Dentistry and Professional Orientation Study Group (GEOPOL), from State University of Maringá (UEM) in order to improve document production and reduce risks. The present study considered 660 records analyzed by GEOPOL (Analysis 1) from March 2017 to April 2018. Between May and September 2018, 422 records were evaluated (Analysis 2), after the implementation of risk management. Both analyzes were based on an exclusive checklist developed by GEOPOL for this purpose. Data were processed in electronic spreadsheets and results were presented in a descriptive and analytical way. The results showed that, in general, the variables presented a better filling in Analysis 2, demonstrating effectiveness in GEOPOL management processes. It was concluded that there was an evolution in documentary filling of clinical records after the implementation of risk management.

1 INTRODUCTION

Dental clinical records are documents present in private or public Higher Education Institutes, prepared by professionals, undergraduate or graduation students, as well as in private and public clinics. They are of great importance in terms of clinical management, administrative and legal, representing the information records of patients who are in attendance or have already been attended, consisting in a set of terms, forms and complementary exams, like tomography, radiography and ultrasonography.

In recent years, the theme “professional responsibility” has been more debated in Dentistry, due to the increase number of legal and ethical actions against dental surgeons (DS), since the patients have been more demanding and aware of their rights. DS must pay attention to a practice named Defensive Dentistry, covering the set of measures that aim to prevent dental professionals from being cited as agent in legal proceedings. For this reason, it is important to take safety measures to prevent possible patient claims, and this is only possible with the correct filling and archiving of these documents.

It is notable that in the face of intense clinical routine, the maintenance of documents regarding the patient and the treatment itself, is covered with many ethical and legal aspects, besides that the professional training in Dentistry, must involve many aspects related to the execution of clinical actions added to the development of organizational, managerial, ethical and legal skills, especially regarding the professional-patient relationship.

Dental procedures must be carefully recorded in the documentation, with patient related data that are relevant to the treatment, such as identification, general and oral health history, physical exam, complementary exams, copy of issued documents, pre-existing conditions for treatment and any other fundamental information related to the user.

The record must be well elaborated, take into account ethical and legal aspects, but also clinical, administrative and legal dentistry aspects. The legal aspect is more related to protecting the professional from claims in the judicial, ethical and administrative sphere. However, it must serve to monitor the patient’s clinical evolution, enable the management of the dental enterprise and serve as a screen, with evidential content for human identification processes.

In 2013, a conclusion work was carried out in the Dentistry Course at State University of Maringá (UEM) and demonstrated the need for improvement in filling out institutional documents from the Dental Clinic facing legal and ethical aspects. In the same year, were also created the activities from Legal Dentistry and Professional Orientation Study Group (GEOPOL), present in CNPq (National Research Council) group directory and institutionalized in UEM as a Teaching Project. Despite being institutionalized as a teaching project, GEOPOL currently works in the university triad, working aspects of teaching, research and extension in an interconnected way.

Based on the 2013 study and also to improve the logic of teaching and institutional legal security, in 2017 GEOPOL proposed Documentary Risk Management at the Dental Clinic at UEM (COD-UEM). Management includes clinical document processing, with review, improvement and edition of institutional standards, improvement and edition of single record, management of document withdrawal by patients, filling management, archives improvement and others. Graduate, undergraduate lato sensu and stricto sensu students work at GEOPOL, coordinated by a mediator, Legal Dentistry professor.
In the academic environment, the correct preparation of documents is even more crucial, as it is a learning environment. Based on this premise, an original and exclusive document analysis standard was developed for GEOPOL, based on professional legal and ethical aspects with emphasis on Defensive Dentistry, which could make a risk classification in institutional documents. Risk management has been implemented, is in operation and must be constantly evaluated.

Considering the above, this study aims to evaluate the documentary evolution of COD-UEM institutional records after the implementation of documentary risk management.

2 METHODOLOGY

It is a documentary, longitudinal, and quantitative study that evaluates an interventional action performed on dental documents.

For the study sample, were considered records evaluated by GEOPOL, included according the following criteria: records evaluated as a whole, filed in GEOPOL occurrence diary, and produced only by Dentistry graduation students from the researched institution.

Those who met the criteria described above and analyzed between March 2017 and April 2018 constituted the sample called “analysis 1”. Altogether there were 660 records in this sample.

It was called “Analysis 2” the sample consisted of records that had attendance records between May and September 2018. This sample had 422 records. The sample difference occurred because 238 records had no additional service recorded in the activity report.

The considered variables were grouped into categories: identification and treatment awareness; anamnesis and exams; signatures and consent and issued documents.

Regarding the identification and treatment awareness, the following variables were considered. “Name”, if the patient’s name was present and filled correctly; “Document”, whether there was the patient or its responsible identification document number; “Signature”, if there was the patient or its responsible signature authorizing the treatment; and “Awareness term” if it was present and signed.

Regarding the variables grouped as “anamnesis and exams” were observed: “Anamnesis”, if the information related to the patient was correctly filled; “Physical exam” whether intra and extra oral exams were performed; “Odontogram”, if it was correctly filled with a pen; “Periodontal examination”, if it was correctly filled with a pen; “Treatment plan”, if there were at least two therapeutic options for the patient, correctly filled with a pen.

About signature / consent it was analyzed: “Student Signature”, “Professor Signature” and “Patient Signature” whether there was student, professor and patient signature – respectively – in the chosen Treatment Plan.

The signatures in the procedures record, considered “Student Signature”, “Professor Signature” and “Patient Signature” when there was student, professor and patient signature – respectively – in all procedures performed.

Regarding issued documents in patient’s favor and image exams, considered “certificate”, if there was patient or responsible signature in the present duplicate; “Prescription”, if there was patient’s or responsible signature in the prescription duplicate; “Referrals”, if there was patient’s or responsible signature in the present duplicate; “Consent Term”, if there was patient’s or responsible signature in the present duplicate; and “Radiographies”, if the images were viable and correctly packaged.

The evaluation method for records was
developed and validated by GEOPOL. It is based on record classification in 4 situations, represented by 4 colors (red, yellow, blue and green), based on the gravity of the filling situation.

The red color was attributed to records which had a patient or responsible signature missing or any information about it, relevant to treatment or identification, condition considered more serious regarding registration and evidence production.

The yellow color was used in cases where professor or student responsible for the treatment signature was missing.

The blue color was used in records that contained failure or lack of filling in the envelope that packs the records, facts that could bring prejudice to clinical evolution of patients.

The green color was attributed to records where there was no correction to be made and was in accordance with what is recommended in literature regarding ethical and legal parameters of dental documentation.

Data were processed in Microsoft Excel electronic spreadsheets. Results were presented descriptively with absolute numbers and percentage and statistical analysis was performed using Chi-Square ($\chi^2$) test, contingency coefficient C, with Bioestat 5.3 Software and considering a 5% significance level.

The study was approved by UEM Human Research Ethics Committee (CAAE 85891018.8.0000.0104).

### 3 RESULTS

Table 1 shows the conditions of COD-UEM records on both analyses. Analysis 2 showed a decrease in the percentage of records classified as “red” related to Analysis 1 ($p=0.006$). Furthermore, in analysis 2 there was a considerable increase of green records ($p<0.0001$).

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>ANALYSIS 1 (n=660)</th>
<th>ANALYSIS 2 (n=422)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Red</td>
<td>610</td>
<td>92.42</td>
<td>301*</td>
</tr>
<tr>
<td>Yellow</td>
<td>31</td>
<td>4.70</td>
<td>31</td>
</tr>
<tr>
<td>Blue</td>
<td>7</td>
<td>1.06</td>
<td>25</td>
</tr>
<tr>
<td>Green</td>
<td>12</td>
<td>1.82</td>
<td>65**</td>
</tr>
</tbody>
</table>

(*=p<0.05. **=p<0.001)

Table 2 presented the variables related to identification and treatment consent declaration. Analysis 1 showed that the variable “patient’s name” was filled in all records (100.0%), as well as analysis 2, while the variable “Consent term” presented the highest percentage of correct filling in Analysis 2, with statistically significant result compared to Analysis 1 ($p=0.002$). The variables “document” and “signature” did not present statistical difference.
Table 2. Absolute description (n), percentage (%) and analytic (p) of variables related to identification and consent declaration of patients treated at COD-UEM with institutional records evaluated before and after the Risk Management implementation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>ANALYSIS 1 (n=660)</th>
<th></th>
<th>ANALYSIS 2 (n=422)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Filled field</td>
<td></td>
<td>Not filled / incomplete or written in pencil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Name</td>
<td>660</td>
<td>100,0</td>
<td>0</td>
<td>0,0</td>
</tr>
<tr>
<td>Documentation</td>
<td>488</td>
<td>73,94</td>
<td>172</td>
<td>26,06</td>
</tr>
<tr>
<td>Signature</td>
<td>643</td>
<td>97,42</td>
<td>17</td>
<td>2,58</td>
</tr>
<tr>
<td>Consent Term</td>
<td>423</td>
<td>64,09</td>
<td>237</td>
<td>35,91</td>
</tr>
<tr>
<td></td>
<td>364*</td>
<td>86,26</td>
<td>58</td>
<td>13,74</td>
</tr>
</tbody>
</table>

(*=p<0,05)

The variables analyzed in table 3 refer to patient’s anamnesis and exams, as well as treatment plan and signatures. It was possible to observe that the variables “Anamnesis” and “Periodontal examination”, although they had higher percentage of correct filling in Analysis 2, there was no statistical significance. It was also observed that the variables “Physical exam” and “Treatment plan” obtained statistically significant results (p<0,0001), as the variable “Odontogram” that also had higher percentage of filling in the second analysis (p=0,009).

Table 3. Absolut description (n), percentage (%) and analytic (p) of variables related to identification and declaration of patients treated at COD-UEM with institutional records evaluated before and after the Risk Management implementation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>ANALYSIS 1 (n=660)</th>
<th></th>
<th>ANALYSIS 2 (n=422)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Filled field</td>
<td></td>
<td>Not filled / incomplete or written in pencil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Anamnesis</td>
<td>578</td>
<td>87,58</td>
<td>82</td>
<td>12,42</td>
</tr>
<tr>
<td>Physical examination</td>
<td>324</td>
<td>49,09</td>
<td>336</td>
<td>50,91</td>
</tr>
<tr>
<td>Odontogram</td>
<td>368</td>
<td>55,76</td>
<td>292</td>
<td>44,24</td>
</tr>
<tr>
<td>Periodontal examination</td>
<td>519</td>
<td>78,64</td>
<td>141</td>
<td>21,36</td>
</tr>
<tr>
<td>Treatment plan</td>
<td>194</td>
<td>29,39</td>
<td>466</td>
<td>70,61</td>
</tr>
<tr>
<td>Student signature</td>
<td>525</td>
<td>79,55</td>
<td>135</td>
<td>20,45</td>
</tr>
<tr>
<td>Professor signature</td>
<td>497</td>
<td>75,30</td>
<td>163</td>
<td>24,70</td>
</tr>
<tr>
<td>Patient signature</td>
<td>522</td>
<td>79,09</td>
<td>138</td>
<td>20,91</td>
</tr>
</tbody>
</table>

(*=p<0,001)

Table 4 refers to student, patient and professor signature in the clinical activity report. The variables “student signature” Analysis 1 percentage (98,18%) was higher than Analysis 2 (97,87%), however the other two variables percentage were higher in analysis 2.
Statistically, there was no difference between the analyzes.

Table 4. Absolute description (n), percentage (%) and analytic (p) of variables related to signature registration in procedures of patients treated at COD-UEM with institutional records evaluated before and after the Risk Management implementation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>ANALYSIS 1 (n=660)</th>
<th>ANALYSIS 2 (n=422)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Filled field</td>
<td>Not filled / incomplete or written in pencil</td>
</tr>
<tr>
<td>Student signature</td>
<td>648</td>
<td>12</td>
</tr>
<tr>
<td>Professor signature</td>
<td>582</td>
<td>78</td>
</tr>
<tr>
<td>Patient signature</td>
<td>640</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 5 shows results regarding the variables “documents issued to the patient and image exams” (absolute values and occurrence percentage of present and incorrect or non-viable documents). There was no statistical difference between the analyzes in none of the documents.

Table 5. Absolute description (n), percentage (%) and analytic (p) of variables related to issued documents and image exams of patients treated at COD-UEM with institutional records evaluated before and after the Risk Management implementation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>ANALYSIS 1 (n=660)</th>
<th>ANALYSIS 2 (n=422)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present, incorrect or non-viable</td>
<td>Present, incorrect or non-viable</td>
</tr>
<tr>
<td>Certificates</td>
<td>112</td>
<td>16,97</td>
</tr>
<tr>
<td>Prescriptions</td>
<td>52</td>
<td>7,88</td>
</tr>
<tr>
<td>Referrals</td>
<td>12</td>
<td>1,82</td>
</tr>
<tr>
<td>Radiographies</td>
<td>98</td>
<td>14,85</td>
</tr>
</tbody>
</table>

Regarding the classification protocol adopted for records, it can be observed that while the “red” records percentage in Analysis 1 accounted 92% of sample (610 records), in Analysis 2 this proportion decreased to 71% (n=301).

Concerning the records classified as “Green”, while in Analysis 1 these accounted for only 1% of the total sample, in second analysis this number increased to 15%.

Such data highlight the increase concern with these documents filling and protection regarding questions in the ethical, civil or criminal sphere of COD-UEM.

4 DISCUSSION

According to Almeida et al., complete identification consists in full name, document,
Evolution analysis of institutional clinical record filling after the implementation of risk management

date of birth, nationality, place of birth, gender, marital status, affiliation, profession, home and professional address and home or mobile phone. In case of patients under the age of 18 or incapable, it must also contain data related to legal responsible, as well as their signatures.

In the documentary research, it was found that the variable “Name” was present in all records on both analyzes, being the only to present this characteristic. Regarding the variable “document” there was no evolution of almost 10% in Analysis 2 (84%) when compared to the previous (73.9%), but the ideal would be fully present, since it is one of the data related to the complete identification of the patient.

The Informed Consent Term it’s the patient’s consent and approval regarding the treatment to be performed, whereas the patient confirms to be aware of the risks the treatment offers and declares to have received all relevant guidance and information, which will support the professional in case of future legal actions due to procedural complications. Furthermore, for the Dentistry Ethics Code constitutes an ethical infraction to perform any procedure without the patient or responsible signature in the Consent Term.

In this sense, it was observed that the variable “Signature” of dental treatment consent was filled in 97% of cases even before Risk Management implementation and so it remained in Analysis 2. Corroborating the study of Costa et al., where the result obtained was 94% of signed records, which shows students awareness regarding the importance of this data in patient’s record in both documental researches.

The variable “Consent Term” represents an essential aspect to the good legal progress of an educational institution or private clinic, requiring the presence of two copies, one to the patient (or legal responsible) and other attached to the record. This variable evolution was demonstrated through 22% increase in Analysis 2 over Analysis 1.

In general context, although there are still necessary improvements to be implemented, it was found that more than 80% of records analyzed after the Risk Management were correct regarding patient general identification.

Through “anamnesis” it’s possible to obtain dental and medical history of the patient, as well as his complains, the history of the current disease, medications in use, habits and other information relevant to the treatment. There was an evolution of this variable filling after the Risk Management implementation, from 87% in Analysis 1 to 94% in Analysis 2, increasing the number of records that better cover the patient’s health conditions in order to carry out the ideal monitoring and treatment for each case, considering patients characteristics through these important information.

It was evaluated in this study that the correct filling percentage of the variable “Physical exam” increased 30% after the Risk Management implementation. This data is of great value, since Brandão et al. study shows that physical exam is very important for the professional to make the diagnosis, treatment plan, monitor and evaluate each patient evolution through vital signs, intra and extra oral inspections, since DS has the responsibility to identify abnormalities.

The data obtained from patient examinations can also help in cases of victim identification in which is not possible to identify them by any method other than the comparison of documented records with the finding that need to be identified, and in this sense great importance can be attributed to Odontogram, that in the findings of the present study, was present and complete in 55% of records analyzed in 2017, and in the second evaluation reached 72%, showing evolution in the filling but not yet the
ideal. The evolution of the filled field in the variable “Periodontal examination”, was also remarkable, which showed a 15% increase in the percentage after Risk Management was implemented.

The Treatment Plan, according to Silva et al., must clarify the patient about what will be necessary for the resolution of his case, and there must be available and adequate options to achieve the dental objective that satisfies the patient’s needs. This plan must be clear and understandable, besides requiring approval of the patient or his legal responsible.

In the present study, it was found that the variable “Treatment Plan” was present and correct in only 67% of evaluated records in Analysis 2, showing a considerable percentage and analytical evolution, but from the legal point of view it is still not desirable. As for the signatures in the treatment plan, for Silva et al. they mean consent and authorization for the alternative chosen by the patient to be performed by the professional and understood as ideal for the case.

Contrary to the fact that suggests the importance of signatures in the Treatment Plan, the variable “patient signature” presented a percentage of 68% of filling, suffering decrease when compared to the Analysis before Risk Management, as well the professor and responsible student signatures which showed to be more deficient in Analysis 2.

This result can be justified by the fact that in Analysis 2, records with no procedure registration were excluded after Analysis 1. Many of these records were with all necessary signatures in Treatment Plan, and from the moment they were excluded from the second sample, the occurrence percentage of this variable was lower.

In clinical practice it is essential that procedures performed are described completely and clearly in the record, and always necessary the patient or legal responsible signature, to validate the exposed and to increase the guarantee of legal protection.

The signatures in performed procedures were variables that had high level of filling in both analyzes. Although the filling percentage in variable “Student signature” decreased in Analysis 2, on the other hand, it was still 97%, representing a good percentage and within the expected and accepted the variables “Professor signature” and “Patient signature” had a positive result, since more than 92% of records contained the professor signature, and as for the patient signature, more than 98% of records matched with the ideal.

Certificate and prescriptions were also investigated variables, since these documents need to be filled in two copies (except special prescriptions, which are elaborated in three copies), the second must be signed by the patient or legal responsible, and attached to the record. Therefore, it was found in this study, the only variable that did not improve in second analysis, the percentage of signatures in certificates duplicate, increasing from 17% to 19%, demonstrating less attention with this signature and emphasizing the need for better control of professors towards this fact. Forgetting to request signatures in prescription duplicates decrease 2% in Analysis 2.

The variable “Referrals” showed great percentage as less than 1% of documents were incorrect, without patient signature. Thus ensuring that the patient confirms to be reffered and the institution can properly enable the flow of reference and counter-reference from Health Care Networks that improve the access and quality care.

Radiographies are considered one of the most important complementary exams, as they assess the condition before treatment and after
Evolution analysis of institutional clinical record filling after the implementation of risk management

the performed procedure, serving as an important means of legal protection. Therefore, it is necessary that they are well processed and stored correctly in order to maintain quality over time, due to this, this was another issue analyzed during risk management. It was observed in the first analysis, 14% of radiographies considered non-viable, in the second this percentage was 13%, it is possible and still necessary to improve this issue. Since the X-ray is the most used complementary exam by the DS and needs to produce desired legal effects whether in ethical, judicial or expert.

For Fernandes, considering SBPqO (Brazilian dental research society) meetings and articles in Scielo platform in 2013 and 2014, studies related to elaboration and maintenance of records were still lacking, demonstrating the need for greater attention to the topic and development of more scientific research on the subject.

It is extremely important that the Dentistry student starts to be aware since graduation regarding the necessity to elaborate a good documentation, because this is the moment to learn that a complete record is your professional ally. Educational institutes are responsible for awareness of the importance of well-prepared and complete dental documentation, since it is in training that future professionals add habits for life.

The results found demonstrated that risk management is extremely important for the improvement of indicators, as already verified. However, this isolated action is not capable of ensuring documentary success, and it is extremely important the awareness and collaboration of the entire teaching staff, students and technical servers regarding the importance of correct and complete filling of the dental record. Furthermore, document analysis must be a dynamics process, with feedback for the institution to have better conditions for evaluating and planning.

5 CONCLUSION

The proposed documentary risk management reflected an evolution of clinical records filling. There was a significant reduction of documents containing failures and an increase in ethical and legally secure documentation. Much contributed to this by the significant improvement of consent term, physical exam, treatment plan and odontogram filling. It was possible to realize that there was no progress for all fields of documentation, a fact that brings the reflection that document management must be dynamic and continuous, based on documentary adjustments awareness process.

RESUMO

Análise da evolução do preenchimento de prontuários clínicos institucionais com a implantação de uma gestão de risco

Este estudo documental, longitudinal e quantitativo foi realizado com o objetivo de avaliar a evolução documental dos prontuários clínicos institucionais após a implantação da gestão de risco. No ano de 2017, o Grupo de Estudos de Orientação Profissional e Odontologia Legal (GEOPOL), da Universidade Estadual de Maringá (UEM) com o intuito de melhorar a produção documental e reduzir riscos. A presente pesquisa considerou 660 prontuários analisados pelo GEOPOL (Análise 1) no período de março de 2017 a abril de 2018. Entre maio e setembro de 2018, foram avaliados 422 prontuários (Análise 2), após a implantação da gestão de risco. Ambas as análises tiveram por base um check-list exclusivo, desenvolvido pelo GEOPOL para esta finalidade. Os dados foram processados em planilhas eletrônicas e os resultados foram apresentados de modo descritivo e analítico. Os resultados demonstraram que, no geral, as variáveis apresentaram um preenchimento melhor na Análise 2, demonstrando eficácia nos processos.
Evolution analysis of institutional clinical record filling after the implementation of risk management

de gestão do GEOPOL. Conclui-se que houve evolução no preenchimento documental dos prontuários clínicos após a implantação da gestão de risco.


REFERENCES

16. Brandão BA, Cortez DL, Loureiro DL,


Correspondence to:
Luiz Fernando Lolli e-mail: profdrluizfernando@gmail.com
Universidade Estadual de Maringá
Av. Mandacaru, 1550 – Centro
87080-000 Maringá/PR Brazil