



**Evaluation of nursing notes before and after a training activity in a university hospital**

*Avaliação das anotações de enfermagem antes e após uma atividade de capacitação num hospital universitário*

*Evaluación de las anotaciones de enfermería antes y después de una actividad de capacitación en un hospital universitario*

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**ABSTRACT**

**Objective:** To verify if the nursing notes improved before and after a training of short duration and the factors those determine this change. **Method:** We analyzed 1551 reports/nursing notes in two inpatient units and two intensive care units. There was used a form in which there were recorded the adequacies or otherwise of the annotations in function of: the course, shift, professional category, and days of hospitalization of the patient. **Results:** We observed that there was improvement in the records made after the training course, with an increase of the adequacies. The intensive therapy units showed higher scores for appropriateness to the wards. The time of hospitalization of the patient eventually influences the scores of adequacies. The score of appropriateness of annotations was not different between the professional categories. **Conclusion:** The action of training of short duration was effective in improving the nursing notes, strengthening the role of continuous education in health services.

**Descriptors:** Training, Continuing Education, Nursing Notes, Nursing Records, Nursing.

**RESUMO**

**Objetivo:** Verificar se as anotações de enfermagem melhoraram antes e após uma capacitação de curta duração e quais fatores que determinam essa mudança. **Método:** Foram analisados 1551 relatórios/anotações de enfermagem em duas unidades de internação e duas unidades de terapia intensiva. Foi utilizado um formulário no qual foram anotadas as adequações ou não das anotações em função do curso, turno, categoria profissional, dias de internação do paciente. **Resultados:** Observamos que houve melhora nos registros feitos após o curso de capacitação, com aumento das adequações. As unidades de terapia intensiva mostraram maiores escores de adequação que as enfermarias. O tempo de internação do paciente eventualmente influencia os escores de adequações. O escore de adequação das anotações não foi diferente entre as categorias profissionais. **Conclusão:** A ação de capacitação de curta duração foi efetiva em melhorar as anotações de enfermagem, reforçando o papel da educação continuada nos serviços de saúde.

**Descritores:** Capacitação, Educação Continuada, Anotações de Enfermagem, Registros de Enfermagem, Enfermagem.

**RESUMÉN**

**Objetivo:** Verificar si las anotaciones de enfermería mejoraron antes y después de una capacitación de corta duración y qué factores determinan ese cambio. **Método:** Se analizaron 1551 informes/anotaciones de enfermería en dos unidades de internación y dos unidades de terapia intensiva. Se utilizó un formulario en el que se anotaron las adecuaciones o no de las anotaciones en función del curso, turno, categoría profesional y días de internación del paciente. **Resultados:** Observamos que hubo mejoría en los registros hechos después del curso de capacitación, con aumento de las adecuaciones. Las unidades de terapia intensiva mostraron mayores escores de adecuación que las enfermerías. El tiempo de internación del paciente eventualmente influye en los escores de adecuaciones. La puntuación de adecuación de las anotaciones no fue diferente entre las categorías profesionales. **Conclusión:** La acción de capacitación de corta duración fue efectiva en mejorar las anotaciones de enfermería, reforzando el papel de la educación continuada en los servicios de salud.

**Descritores:** Capacitación, Educación Continua, Anotaciones de Enfermería, Registros de Enfermería, Enfermería.

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## INTRODUCTION

Within nursing care to the patient, records of care provided, about the results and the important facts those occurred with patients during the hospitalization, it is a legal obligation of the staff and must be carried out correctly in the patient's medical records, in accordance with the recommended by the Federal Nursing Council of Brazil<sup>1</sup>. These records are also known as nursing notes and have the purpose to prove the care, show the evolution that the patient has during hospitalization, facilitate communication of different health workers, encouraging data for research, and even serve as evidence in judicial proceedings<sup>2</sup>. As proposed, the nursing records must not be experienced as part of the daily bureaucracy, which often falls into oblivion at the expense of caring, which is essential in the valuation of their role and the knowledge of the consequences arising from their improper use in professional practice<sup>3</sup>.

The nursing notes are a formal way of communication in group and this should be improved every day, because the communication in groups regarding a skill, or even decisive competence in relations and in care, a preponderant factor in the humanization of care<sup>4</sup>. To ensure that such notes be done properly, and contribute to the safety and the improvement of patient care, professionals must recognize their purpose and importance, in addition to being prepared with knowledge and skills to accomplish them. After finishing the process of professionalization, comes a very important aspect in the acquisition of knowledge, which is continuing education, which makes the professional expand and renew his

Nursing notes before and after a training activity knowledge. Continuous education has the role of encouraging, discern and situate the picture that involves the responsibilities at work, showing important the achievements of training actions in service of nursing professionals<sup>5-7</sup>.

The training activities should expand the knowledge and skills of the worker, increasing the quality of service. Thus, it becomes necessary to the evaluation of the results of the trainings in the behavior of professionals, to see if there have been changes in performance and the magnitude of these changes. During the year 2013, at the Hospital of Clinics of Uberlândia (HCU), belonging to the Federal University of Uberlândia, there was offered a training of short duration (lectures) on nursing notes, taught by an inspector of the Regional Council of Nursing, with mandatory participation of professionals. This proved to be an appropriate scenario and conducive to the assessment of the impact of a short-term training in nursing notes and consequently in patient care.

Thus, we define some research questions: "Has the training on nursing notes made by the HCU improved the records of the professionals?" "How the notes made by the nursing staff have improved after the training and which aspects are related to this change?"

Following these questions, the aim of this study was to evaluate the nursing notes made in the records of patients before and after an activity of training of short duration carried out in a university hospital.

## METHOD

The study is retrospective, documental, exploratory and descriptive of the type pre and

post-intervention. The study was carried out at the Hospital of Clinics of Uberlândia (HCU) which is a large university hospital that stands to be the biggest offer of services of the Health Unic System of the State of Minas Gerais and in addition to being in the ranking of the largest university hospitals of the education network of the Ministry of Education the placed third. The HCU is a benchmark for medium and high complexity medical care, and attends 86 municipalities in the North Triangle. In addition to being a teaching hospital that attends different courses of health and related fields.

The intervention assessed was an empowerment that happened in March 2014 in the 2<sup>nd</sup> Cycle of Training of the HCU, a course on nursing notes with duration of two hours (lectures), which was offered in nine classes, distributed in three days, and taught by a single representative of the Regional Council of Nursing of Minas Gerais. Participated 633 professionals from various sectors of the Hospital, and the course had as aim to improve the notes of nursing professionals registered in the documents of the patient's hospital stay (chalkboard), and thus meet the standards, as well as meet the ethical and legal aspects on the subject.

The study focused on four inpatient units: two units of high complexity, the Adult Intensive Care Unit (AICU) and the Pediatric Intensive Care Unit (PICU), and two units of less complexity the Infirmary of Clinical Medicine and Pediatrics. These units were chosen because they were the units that had more employees participating in the course on nursing notes during the Cycles of Training of the HCU, being those who

Nursing notes before and after a training activity participated respectively: 124, 91, 64 and 63 employees of each unit.

The data about the adjustments in the nursing notes were collected from the medical records of the patients. This review took place only among those which were hospitalized in these sectors in the three months prior to the completion of the course (December 2013 to February 2014) and three months after completion (April to June 2014). All data were collected only in the form used in the institution: "Nursing Notes (Anotações de Enfermagem, in Portuguese)", not being consulted any other documents. The data was collected from November to December 2016. The entire collection was held by the same researchers to avoid the bias in the evaluation of the annotations.

The collection was standardized using a form constructed from the recommendations addressed in this course and in addition to the information on sector of assessment, date and number of days of hospitalization of the patient and information about the adequacy of the nursing notes. The items on this form were transformed into a scale and received score zero when the item evaluated was not adequate and one when the item was appropriate. The presence or absence of a report for the shift was not included in the sum of scores, since the institution evaluated, patients do not receive high or the chalkboard is filed before that all notes and reports of the medical records are completed. The form was not validated, already aimed only to evaluate that course, not being applicable to other contexts.

The report items evaluated as adequate were: possible to identify the professional category (PIPC), recording date of report (RDR), signature of the professional (SP), presence of stamp (PS), if the presence or absence of a stamp has number of record in the council (PNRC), recording schedule in the report (RSR), record of the facts at the time in which they occur (RFTWO), readability (RED), organization (ORG), clarity (CLAR), conciseness (CONC) and objectivity (OBJET), there were considered as positive items those indicate adequacy of the report.

While the report items those were considered as inadequacies, and were considered items with negative sense were: record of the report for the entire period without record of schedules (RREP), inadequate correction of spelling errors or annotation (ICSEA), records of data analyzed instead of raw data (RDAIRD), use of acronyms or abbreviations (UAA), absence of details of procedures (ADP), use of terms of connotation of value instead of measurement (UTCV), annotation report to another professional of Nursing (ARAPN), completion and registration of private actions of Nurses (RPAN) and Annotations in the form of evolution of nursing (AFEN).

As the total score was proposed to assess the adequacy of the Nursing records, for the calculation of the Score of Adequacy was considered  $\text{Score} = \text{SPS} + (9 - \text{SNS})$ , where SPS is the sum of the positive scores and SNS is the sum of the negative scores. The Score of Appropriateness could vary from 0 to 21 points.

The population in this study was composed by all reports of nursing made by

Nursing notes before and after a training activity officials in the medical records of the patient. In this case, we consider all patients hospitalized in a period for six months, in three work shifts, in the four sectors in which the study was conducted. The institution standardizes as required that the patient was nursing notes for the period of the morning, afternoon and night (three reports per day). The calculation of the population of each sector was done by multiplying the average patient-day by three shifts and by six months of study.

In the Infirmary of Medical Clinic the population was of 18,208.44 reports of nursing notes, in Adult ICU there were 16,288.20, in pediatrics 15,982.56, and in pediatric ICU were 3,886.56. Whereas these populations, the confidence level of 99.5% in addition to the possibility of sampling error of 3.475%, the sample was composed by 1,584 nursing notes, stratified as follows: Infirmary of Medical Clinic, 396 nursing notes; Adult ICU, 396 reports; Pediatrics, 396 reports and Pediatric ICU 396 reports.

The form of sampling was by collections of two phases: first to draw records of patients and then draw the days of hospitalization to be evaluated. Thus there were randomly selected 11 records of hospitalized patients in each of the four sectors, for each of the six months of research. In these 11 records there were randomly selected two days of hospitalization to collect the nursing records of the three shifts, being that after the draw; there were collected a record of each shift (morning, afternoon and night) for each of the two days. From these collections, 23 samples were excluded, because they do not contain sufficient information (5

from the sector Adult ICU, 10 from the Medical Clinic, 11 from the sector of Pediatrics and 7 from the Pediatric ICU).

The data of the Score of Adequacy of Nursing Notes were described by average, standard error, minimum, maximum and median. The effect of the number of days after admission in the Score of Adequacy was tested with the Spearman correlation analysis, and the significance was tested using the Student's *t*-test. The analyses were carried out separately by sector and by training phase.

For comparison between the scores, as it is a discrete variable count, there was adopted Generalized Linear Models, embracing the probability density function of Poisson and the logarithmic link function. When there were differences in the averages of the groups were compared pair to pair with the least significant difference (LSD). Three separate analyzes were performed. At first, it was compared the effect of the sector (ICU and infirmary), stage (pre and post-training) and work shift (morning, afternoon and evening) and all the interactions between the factors. For the factor phase (pre- and post-training), the month of collection was disregarded by summing all data relating to each of the three months per phase.

In the second analysis, which aimed to evaluate differences between the three categories of nursing professionals, there were adopted the factors: sector (ICU and infirmary) and professional (nurse assistant, nursing technician, nurse, not identified) and their interaction. In the third analysis, which had as objective to evaluate which effect of the month of collection on the scores, there were

Nursing notes before and after a training activity compared the effect of the sector (ICU and infirmary), the month of collection (December, January, February, April, May and June) and the work shift (morning, afternoon and evening) and all the interactions between the factors. The low number of notes made by nurses prevented that the interaction between the professional factor and other factors could be tested.

The independence between the phase of training and the adequacy of each item of the questionnaire adequacy was assessed using the Chi-square test of independence with continuity correction (for items with all the expected frequencies higher than 5) or the Fisher Exact test (for items with at least one expected frequency lower than 5).

All statistical analyses were performed on statistical package SPSS 20.0, and there was adopted significance level of 5%.

The study followed all ethical recommendations of the National Health Council, present in Resolution 466 of 2012. The project was approved by the Research Ethics Committee at the Federal University of Uberlândia through Opinion 1414561, which dismissed the need and the signing of the Informed Consent Form.

## RESULTS

The Score of Adequacy of Nursing Notes shows the correspondence between the nursing notes with the guidelines made in training by COREN, i.e., the higher the score the better the adequacy of the note and its compliance with the recommendations. We observed that there was a weak relationship and significant

correlation between the score and the number of days of hospitalization only in the post-training phase of  $r_s = 0.142$  ( $p = 0.049$ ) at the Medical Clinic and  $r_s = 0.160$  ( $p = 0.026$ ) in pediatrics. Already in pediatrics, this relationship also occurred in the pre-training  $r_s =$

Nursing notes before and after a training activity  $0.144$  ( $p = 0.046$ ) (Table 1). This means that as the number of days of hospitalization increases the Score of Adequacy of the Notes also increases, indicating that there is an improvement in the quality of annotations after the training in Clinical Medicine and Pediatrics.

**Table 1.** Spearman's rank correlations ( $r_s$  ( $p$ );  $n$ ) between the number of days after hospitalization and the Score of Adequacy of Nursing Notes.

Unity	Training Phase	
	Pre-training	Post-training
Pediatric Intensive Care Unit	0.094 (0.199); 189	0.085 (0.230); 200
Pediatric Infirmary	0.144 (0.046); 191	0.160 (0.026); 194
Adult Intensive Care Unit	-0.036 (0.618); 194	0.013 (0.859); 197
Infirmary of Clinical Medicine	-0.019 (0.790); 193	0.142 (0.049); 193

In the comparison between the units for the factors Sector, Phase and Shift, there was found that there is a significant effect on the factors Sector and Phase, both in the comparison of Adult ICU with the Infirmary of Medical Clinic, as in the comparison of the Pediatric ICU with the Pediatrics, being that the other levels were not significant. Already the shift factor was significant in comparison Pediatric ICU with

Pediatrics. In the comparison of the effect of the Professional, it noted that there is effect in the Professional factor in the two comparisons as well. Already in the comparison between the months, we observed that the effect was also significant for both comparisons, although the factor Month interacted with the factor Sector in comparison with the Pediatric ICU with the Pediatrics. (Table 2)

**Table 2.** Summary of statistics for generalized linear models for different comparisons of Score Adequacy of Nursing Notes.

Model	Factor	Adult ICU versus Medical Clinic			Pediatric ICU versus Pediatrics		
		$\chi^2$	<i>d.f.</i>	<i>P</i>	$\chi^2$	<i>d.f.</i>	<i>p</i>
Sector x Phase x Shift	Sector	48.81	1	<0.001	24.63	1	<0.001
	Phase	15.89	1	<0.001	10.01	1	0.002
	Shift	1.10	2	0.576	5.99	2	0.050
	Sector * Phase	0.03	1	0.870	0.46	1	0.496

		(continuation)					
	Sector * Shift	0.65	2	0.722	0.96	2	0.619
	Phase * Shift	1.50	2	0.473	0.02	2	0.992
	Sector * Phase * Shift	1.21	2	0.546	0.12	2	0.940
Sector Professional	Sector	6.46	1	0.011	0.912	1	0.340
	Professional	67.95	3	<0.001	154.85	3	<0.001
	Sector * Professional	7.09	3	0.069	2.33	3	0.505
Sector x Month x Shift	Sector	47.82	1	<0.001	26.95	1	<0.001
	Month	42.60	5	<0.001	48.53	5	<0.001
	Shift	1.12	2	0.572	5.21	2	0.074
	Sector * Month	9.37	5	0.095	27.74	5	<0.001
	Sector * Shift	0.57	2	0.751	1.36	2	0.504
	Month * Shift	5.13	10	0.882	8.96	10	0.536
	Sector * Month * Shift	7.14	10	0.712	6.36	10	0.784

Legend: ICU: Intensive Care Unit,  $X^2$ : Chi-square statistic; *d.f.*: degrees of freedom; *p*: probability.

We observed in the comparison of the scores of adequacy which in ICU showed higher mean scores than in the wards, both when they were compared units for adults patients or in the comparison of the units that involve children. And that the score of adequacy is greater after training in both cases (Table 3 and 4). In the comparison between the pediatric ICU and pediatrics demonstrates that also occurs effect of shift, with the afternoon shift presenting the lowest scores. Already when it was evaluated

the effect of training, showed that professionals not identified have an average score lower than the reports where it was possible to identify the professional categories (Auxiliary, Technical and Nurse), which did not differ among themselves (Table 3 and 4). In the comparison of months it was observed different results, showing flotation in function of the month. Even so it was observed higher scores after the training, although if you found high scores in both pre and post-training phase.

**Table 3.** Descriptive statistics of the Score of Adequacy of Nursing Notes valued at a pre and post-training, in comparison between the Adult Intensive Care Unit versus Infirmary of Medical Clinic.

Factor	Stratum	n	Average <sup>1</sup>	SE	Min	Max	Median
Sector	Medical Clinic	386	15.60 b	0.13	5	21	16
	Adult Intensive Care Unit	391	17.65 a	0.10	12	21	18
Shift	Morning	263	16.74 a	0.14	9	21	17
	Afternoon	258	16.41 a	0.16	5	21	17
	Night	256	16.74 a	0.17	9	21	17

(continuation)

Factor	Stratum	n	Average <sup>1</sup>	SE	Min	Max	Median
Phase	Pre-training	387	16.05 b	0.13	5	21	16
	Post-training	390	17.21 a	0.11	9	21	18
Professional	Nursing Assistant	77	17.57 a	0.19	12	21	18
	Nursing Technician	421	17.71 a	0.09	12	21	18
	Nurse	9	18.00 a	0.60	15	21	18
	Non identified	270	14.64 b	0.14	5	20	15
Month	December	130	15.26 c	0.23	5	21	15
	January	132	17.42 ab	0.20	10	21	18
	February	125	15.42 c	0.21	9	20	16
	April	131	16.90 ab	0.19	9	21	17
	May	130	16.89 b	0.23	11	21	17
	June	129	17.85 a	0.15	13	21	18

Legend: EP: standard error of average, Min: minimum; Max: maximum.

<sup>1</sup> Average values followed by distinct letters for each factor differ by the test of least significant difference (LSD;  $p < 0.05$ ).

**Table 4.** Descriptive statistics of the Score of Adequacy of Nursing Notes valued at a pre-and post-training in comparison between the Pediatric Infirmary and Pediatrics Intensive Care Unit.

Factor	Stratum	n	Average <sup>1</sup>	SE	Min	Max	Median
Sector	Pediatrics	385	15.52 b	0.14	9	21	16
	Pediatric ICU	389	16.96 a	0.12	9	21	17
Shift	Morning	262	16.47 a	0.15	10	21	17
	Afternoon	258	15.74 b	0.15	9	21	16
	Night	254	16.52 a	0.18	9	21	17
Phase	Pre-training	380	15.78 b	0.14	9	21	16
	Post-training	394	16.70 a	0.12	9	21	17
Professional	Nursing Assistant	84	17.52 a	0.17	13	20	18
	Nursing Technician	370	17.89 a	0.08	13	21	18
	Nurse	7	17.14 ab	0.51	15	19	17
	Non Identified	313	13.93 b	0.11	9	19	14
Month Pediatric	December	63	13.51 c	0.31	10	21	13
	January	66	17.42 a	0.29	12	21	18
	February	62	13.90 c	0.31	9	19	13
	April	66	17.24 a	0.23	14	20	17
	May	62	15.53 b	0.30	10	20	16

(continuation)



Factor	Stratum	n	Average <sup>1</sup>	SE	Min	Max	Median
Month UTIPED	June	66	15.33 b	0.26	10	19	16
	December	61	15.75 c	0.30	11	20	16
	January	63	17.52 ab	0.22	13	21	18
	February	65	16.42 bc	0.24	12	20	17
	April	66	16.20 bc	0.26	9	20	17
	May	65	17.09 bc	0.28	9	21	18
	June	69	18.62 a	0.26	13	21	19

Legend: SE: standard error of average, Min: minimum; Max: maximum.

<sup>1</sup>Average values followed by distinct letters for each factor differ by the test of least significant difference (LSD;  $p < 0.05$ ).

When we compared each item in the evaluation of the adequacy between the phases of training, we observe that in the post phase, we identify the improvement in the adequacy of the following items: possible to identify the professional category, if presence or absence of stamp there is a number of record in the council, presence of stamp, organization, concise, clarity, objectivity, records of data

analyzed instead of raw data, use of terms of connotation of value instead of measurement, record of the report for the entire period without record of schedules, use of acronyms or abbreviations and absence of details of procedures, i.e., these items were the items that have improved significantly after the training, demonstrating the improvement of the notes. (Table 5)

**Table 5.** Percentage of adequacy in nursing notes pre and post-training in a continuous action of education, in the form of lectures, valued item to item, regardless of the complexity of the service or of the evaluated unit.

Item	Pre- (n=767)		Post- (n=784)		$\chi^2 (p)^1$
	%	n	%	n	
Possible to identify the professional category	57.5	441	67.2	527	15.21(<0.001)
Registration of the date of the report	71.7	550	74.7	586	1.82(0.177)
Professional subscription	96.3	739	96.7	758	0.13(0.720)
Presence of stamp	53.8	413	67.9	532	32.09(<0.001)
There are council registration number	65.1	499	71.6	561	7.57(0.006)
Time record in the report	93.2	715	94.1	738	0.54(0.460)
Record of the facts at the time they occur	44.2	339	44.1	346	0.001(0.979)
Readability	88.7	680	88.3	692	0.06(0.809)

(continuation)

Item	Pre- (n=767)		Post- (n=784)		$\chi^2$ (p) <sup>1</sup>
	%	n	%	n	
Organization	78.1	599	85.3	669	13.66(<0.001)
Clarity	90.1	691	94.1	738	9.81(0.003)
Concision	76.9	590	87.5	686	30.06(<0.001)
Objectivity	92.4	709	96.0	753	9.46(0.002)
Report registration for the entire period without registration schedules	90.2	692	96.9	760	30.57(<0.001)
Inadequate correction of spelling errors or annotation	93.5	717	94.6	742	0.94(0.333)
Data records analyzed instead of non-analyzed	71.7	550	89.2	699	77.2(<0.001)
Use of acronyms or abbreviations	20.6	158	28.8	226	14.15(<0.001)
The absence of details of the procedures	52.8	405	45.7	358	7.91(0.005)
Use of terms of connotation of value rather than measurement	57.4	440	74.5	584	51.04(<0.001)
Note for other professional	98.8	758	98.9	775	0.002(0.963)
Realization and private actions of the nurse	99.5	763	99.7	782	0.727(0.394)
Notes in the form of nursing development	98.7	757	99.4	779	1.28(0.176)

<sup>1</sup> Statistic and probability based on Chi-square test.

When there was evaluated the complexity (ICU versus Wards) and areas of activity (Adult versus Pediatrics) along with the factors shift, professional category, and phase of training, we observed that there were significant differences between the ICU and the wards ( $\chi^2 = 27.85$ ;  $p < 0.001$ ) between the phases ( $\chi^2 = 12.58$ ;  $p < 0.001$ ) and between the professional categories ( $\chi^2 = 208.00$ ;  $p < 0.001$ ), while there were no differences between the adult area versus pediatrics ( $\chi^2 = 1.01$ ;  $p = 0.314$ ) and work shift ( $\chi^2 = 2.29$ ;  $p = 0.318$ ). No interaction between these factors was significant and they were withdrawn from the final model. The ICU showed higher average (17.25) that the Infirmary (16.12); the post-training presented a higher average (17.05) that the pre-training (16.31);

and the reports of professionals where there was not identified the professional category had lower average (14.43) that the categories identified those did not differ among themselves (average of 17.41 to 17.62).

## DISCUSSION

We noted the improvement of nursing notes after the capacitation of short duration, reinforcing that the continuous education established in the work environment has its benefits for the quality of services, reflected in improvements to the quality indicators, demonstrating the need for keeping the continuous education in nursing services. From the items those had been analyzed in the

Nursing Notes, 57.14% had a significant improvement, 23.80% have improved, but without significance, and the other 19.06% kept their percentage averages.

The relationship of the quality of the notes with the days of hospitalization in Pediatrics that we found can be justified by the greater bond between professional and pediatric patient. While the absence of this relationship in the ICU can be due to the greater complexity of care, what leads to a more thorough daily evaluation, despite the fact that training led the professionals from the Medical Clinic in the post-training to deepen their knowledge through the evolution of the patient, i.e., to know him better with the practice of the day to day.

In the ICU we believe that by the degree of complexity and responsibility, communication in the nursing notes tends to be more challenging since the beginning of hospitalization, what also reflects in the higher average score of ICUS. The training may have influenced the professionals of the Medical Clinic to have greater rigor in the pattern of the notes as a whole that ended up reflecting on the need to better understand the history of the patient.

Since the absence of differences between the averages of the scores of the professional categories of Nursing those we found may have happened because the majority of professionals in the hospital have a higher education that is hired; this fact, which was not evaluated here; but demonstrated in other studies<sup>8</sup>. In addition, the low number of reports made by nurses does not allow a clear vision and characterization of reports made by these professionals. Although not justifiable, the low representativeness of

Nursing notes before and after a training activity notes by nurses seems to be a constant that remains in the studies and in time, a fact already identified since work of 1976<sup>9</sup>.

We can suppose that the nurse is more involved in the management of care or when participates in the act of caring believes that the record should be performed by the technical body of nursing. Differences in the results of evaluations of knowledge between the Nursing categories appear to be significant only for some themes, as shown in other studies conducted in the same institution studied here<sup>10-11</sup>. A factor that has been poorly evaluated is the professional category and training different from the office that acts, which could be masking the results found.

Upon these results, we agree that the investment in training in the environment and during working hours or even the incentive to formal education allows that the institution benefits directly from the improvement of the quality and continuity of services, by increasing organizational efficiency<sup>12</sup>. Like other authors, we emphasize the importance of conducting studies to describe how occur the nursing notes, particularly regarding the obligation of essential information in the records, because the searches bring great value to these issues<sup>13-14</sup>.

Another study showed that the nursing notes need to go through reviews, to ensure that the information contained therein reflect the interventions of services rendered by nursing and allow the improvement of communication and of documents recorded by professionals<sup>15</sup>.

The evaluation of nursing notes through an audit or a thorough investigative and careful analysis of the points that affect a greater

incidence of failures allows access to the weak points and, consequently, the creation of parameters and corrective actions and improvements.

In our study, the Pediatric ICU obtained the best results for the Score of Adequacy of the Notes. This result was different from those presented by a similar study performed in the Neonatal Intensive Care Unit, which pointed to the lack of standardization and the nursing notes performed in hospitals midsize businesses, resulting in records with low technical content. The evaluation of questions of quality of nursing notes shows the size of the communicative effectiveness among professionals and consequently the result in assistance<sup>14</sup>.

There were analyzed 21 items for adequacy in our study, 12 had behavior with significant improvement of scores, five items with improvement; however, not significant and four kept a similar percentage between the phases. The items with improved behavior among all the items analyzed represented 57.14% (12/21) of the assessed. This reflects the effectiveness of the training, the improvement of nursing notes. These results may have been related to an increase of knowledge acquired with the training of nursing notes; some studies have demonstrated the increase in knowledge of nursing professionals after training of short duration as the assessed here<sup>10</sup>, although many times when there is evaluation of its impact on direct assistance to the patient, there was no significant effect<sup>11</sup>.

Criteria such as identification and stamp had a significant improvement. Other studies have also identified that the professionals had

Nursing notes before and after a training activity not the usual signing and stamping on the notes, keep unreadability, make inadequate correction of errors, and take care and not recorded as prescription<sup>16</sup>. The notes regarding the cutaneous lesions and the high notes were incomplete in their majority, 73.9% and 97% of the analyzed records in surgical patients<sup>13</sup>, with the adequacy of records in only a few items. Identification problems are common even in the name of patients in the forms of hospitalization and care<sup>17</sup>.

Even with the ICU showing greater adequacy of records, negative points were observed as another study that obtained low adequacy in complete records of nursing, ranging from 25 to 54.7%<sup>18</sup>. One of the items with the worst adequacy, use of abbreviations, has also been commonly observed in studies of adequacy of nursing notes<sup>19</sup>.

Yet not all points recommended in training are running in their fullness, requiring further interventions to their setting. There is a need to adapt the training to the professional needs and of the institution involved. Thus, we identified that the continuous education established in the workplace has its benefits for the quality of services, and the data here measured suggest the incentive and the keeping of the continuous education in nursing services. This short duration is inserted in a Program of Continuous Education, which has been shown to be effective in providing training in service to the nursing professionals when this is offered in mandatory and during working hours<sup>20</sup>.

These data reinforce the need to create a generic tool or instrument for evaluation of adequacy of nursing records that can be used in

hospital routine. In the absence of this instrument there is the need for continuous assessment of the notes by the institution for quick correction of non-conformities.

The main limitation of this study is the use of a specific collection form for a specific scenario of empowerment. This fact does not allow generalizations or even replication, or comparisons with some studies. Despite this, the study makes clear the effective result of training of short duration in the improvement of indicators of nursing assistance. It would be interesting to the proposition, validation and use of a form or instrument to evaluate the adequacy of records made by nursing, which would allow comparison of institutions and scenarios; but institutional peculiarities can hinder the construction of this instrument. Even with these limitations, in many respects our results and discussions corroborate with other studies about the nursing notes.

## CONCLUSION

We conclude that the training of short duration in lecture format offered by the institution was effective in improving the quality indicators relating to the nursing notes. The factors related to this improvement is that from the provision of information occurred best records in intensive care units, when compared with the wards and that the time of hospitalization of patients may be related to the quality of nursing records. Other factors such as work shift, temporal variation and the professional category of nursing do not seem to

Nursing notes before and after a training activity have equal effect on units evaluated, regarding the adequacy of the nursing notes.

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## COLLABORATIONS

The authors A.V.A., C.M.R. participated in joint way the stages of conception and design of the study. AML, CEF collected the data. CMR performed the analysis of the data. AVA, CMR, AML and the CEF made the interpretation of data, wrote and made a critical review of the intellectual content of the manuscript, final approval of the version to be published, and accountability for all aspects of the work, including the guarantee of its accuracy and integrity.

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#### **INTEREST CONFLICTS**

The authors declare no conflict of interest.

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