Patient safety culture among nursing professionals in the intensive care environment*

Cultura de segurança do paciente entre profissionais de enfermagem no ambiente da terapia intensiva

Cultura de seguridad del paciente entre profesionales de enfermería en el ámbito de los cuidados intensivos

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ABSTRACT

Objective: To analyze the patient safety culture among intensive care nursing professionals. **Method:** This is a cross-sectional study carried out in Intensive Care Units of a public hospital. Data collection was carried out from September to October 2017 with nursing professionals, using the Hospital Survey on Patient Safety Culture questionnaire. Cronbach's Alpha, Pearson's Chi-Square or Fischer's Exact tests (5% significance level) were performed. **Results:** The final sample consisted of a total of 163 nursing professionals. No strong areas were observed for patient safety. The dimensions "teamwork in the unit", "expectations and actions of the supervisor/manager for the promotion of patient safety" and "organizational learning and continuous improvement" had the highest rates of positive responses, whereas the dimensions "opening for communication" and "feedback and communication about the error" had the lowest percentages. The general degree of patient safety was considered very good 72 (47%) and underreporting of the events was observed, most of them were carried out by nurses. **Conclusion:** No dimension assessed was considered to be a strong area. However, most were shown to be potential areas for patient safety culture.

DESCRIPTORS

Patient Safety; Organizational Culture; Intensive Care Units; Nursing.

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INTRODUCTION

The patient safety culture (PSC) determines the commitment, style and competence of healthcare institutions. Its development is strongly influenced by the behavior of health professionals who are directly influenced by organizational management[1].

The National Patient Safety Program conceptualizes PSC as necessary for all workers, including professionals involved in care and managers who must prioritize safety above financial goals, encouraging the identification, notification and resolution of Adverse Events (AE) so, based on these occurrences, organizational learning is promoted[2].

Institutions that create and establish a positive culture obtain better health indicators as a result of actions based on mutual trust, due to the common perception of the role of patient safety in the prevention of AE[3]. Despite being mandatory since 2014, AE notifications in Brazil are still poorly investigated; data from the Health Surveillance Notification System (*Notivisa*) from 2014 to 2016 pointed to the occurrence of 63,933 events in Brazil, with 417 patients who died, most (96.6%) in the hospital environment during the provision of care[4].

The occurrence of these events reflects the distance between real and ideal care, constituting one of the greatest challenges for patient safety[5]. Among the risk environments in a hospital, intensive care units (ICU) are shown as a potential scenario for the occurrence of AE due to the severity of patients, complexity of therapeutic interventions and a large number of technological devices[6].

Among the members of the multiprofessional team working in the ICU, Nursing is the largest workforce, with more than one million workers in Brazil and, within this environment, the workload of these professionals is directly associated with the occurrence of AE[5], which refers to the need for understanding by these professionals about the error in health care and its consequences, seeking to improve care and prevent complications.

In this context, patient safety requires a practice with a minimum of unsafe acts, which achieves the best results for the patient. Therefore, evaluating the PSC is important to measure the organizational conditions that lead to possible harm to patients in health services[7]. Thus, the aim of this study was to analyze PSC from the perspective of nursing professionals in the context of intensive care.

METHOD

Type of study

This is a cross-sectional study with a quantitative approach.

Scenario

The study was carried out in four ICU – a Surgical ICU, a Cardiac ICU and two General ICU – of a public hospital in the state health network, located in the city of São Luís, Maranhão, Brazil. It is a highly complex hospital that has about 216 beds for care in medical and surgical specialties, 47 of which are for intensive care.

Population

The population consisted of a total of 200 nursing professionals, in direct contact with patients or who were not in direct contact, but whose functions affected their care and who performed their activities in the four ICU. The inclusion criteria were being a nurse or nursing technician, with a minimum weekly workload of 20 hours.

Participants on sick leave, without salary or maternity, as well as those who answered less than an entire section of the instrument, answered less than half of the items of the entire instrument in different sections and those who presented the same answer in all items were excluded, denoting that the participant did not give the necessary attention to completing the instrument.

Sampling was non-probabilistic, intentional. The final sample consisted of 163 nursing professionals, 42 nurses and 121 nursing technicians. Of these, 11 nurses and 25 nursing technicians were assigned to the Surgical ICU, 9 nurses and 30 nursing technicians to the Cardiac ICU, 12 nurses and 32 nursing technicians to the General ICU I, 10 nurses and 34 nursing technicians to the General ICU II.

Data collection

Data collection took place in September and October 2017. Participants were approached individually during their work shift, when they were available, and were instructed on the objectives of the research and the completion of the instrument. The return of this instrument occurred on this same opportunity. With professionals who, for some reason, were not available to respond on the date of the approach, the researchers made attempts on three subsequent dates.

The Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire developed by the Agency for Healthcare Research and Quality (AHRQ) was used[8]. It is an instrument that has already been translated and validated into Brazilian Portuguese, which aims to assess the multiple dimensions of PSC.

The questionnaire consists of nine sections that comprise 53 items, of which 42 are related to specific issues of PSC, distributed in 12 dimensions, which are: 1. Teamwork within the units; 2. Expectations and actions to promote the safety of the supervisor/manager; 3. Organizational learning – continuous improvement; 4. Support from hospital management for patient safety; 5. General perception of patient safety; 6. Feedback of information and communication about errors; 7. Opening for communication; 8. Frequency of notified events; 9. Teamwork between hospital units; 10. Adequacy of professionals; 11. Shift change and internal transfers and 12. Non-punitive response to the error[6-7].

The 42 items of the questionnaire that evaluate the PSC are in the form of a Likert Scale, graded in five points, which

reflects the degree of agreement, from 1 (totally disagree or never) to 5 (totally agree and always). The patient's safety degree was measured by the instrument on a different scale from the other items, being assessed by a 5-point scale from 1 (very poor) to 5 (excellent) and the number of safety events reported in the last 12 months, measured by "no notification" responses to "21 or more notifications"[6-7].

DATA ANALYSIS AND TREATMENT

After collecting the data, an exploratory analysis of the questionnaires was initially carried out by two evaluators to identify and eliminate those that presented highly asymmetric responses or a high number of missing responses[8]. The questionnaires were also revised for the presence of double, illegible or erased responses. In case of double answers of converging meanings, the option with the highest score was maintained, by consensus of the researchers. Regarding double answers of divergent, illegible or erased meaning, they were considered as missing information in the sentence.

The evaluation of the PSC occurred through the percentage of positive responses obtained in each dimension, as recommended by AHRQ. The results generated allowed the identification of fragile, potential and strong areas of patient safety; "strong areas of the patient safety culture" in the hospital are considered those whose items written positively obtained 75% or more positive responses ("totally agree" or "agree"), or those whose items written negatively obtained 75% or more of negative responses ("totally disagree" or "disagree"). Likewise, "fragile areas of the patient safety culture" were considered and those in need of improvement were those whose items had less than 50% positive responses. Results between 50% and less than 75% were considered potential areas for patient safety[8].

To prevent typing errors and control data quality, double typing of the questionnaires was entered and inserted into a Microsoft® Excel® spreadsheet, then transferred to the statistical software IBM Statistical Package for Social Sciences (SPSS) for Windows 20.0®. To answer the research objective, one used descriptive and analytical statistics, with data presented through figures and tables, containing absolute (n) and relative (%) frequency, measures of central tendency (minimum and maximum) and dispersion measures (mean and standard deviation).

To assess the reliability and consistency of the data produced by the instrument, the Cronbach's Alpha test (α) was used, whose values above 0.70 are considered acceptable[9]. To determine the statistical association between the number of AE and the overall patient safety score between the professional nursing categories and the workplace, one used Pearson's Chi-Square or Fischer's Exact test and the level of significance adopted was 5%.

ETHICAL ASPECTS

Ethical issues followed the recommendations of Resolution No. 466/2012 of the National Health Council.

All participants signed the informed consent form, with the research project being submitted and approved by the Research Ethics Committee of the *Universidade Federal do Maranhão* under No. 2.076.153 and CAEE: 66298017.0.0000.5087.

RESULTS

A total of 163 nursing professionals participated in the study, most of them were women 144 (89.4%), with a mean age of 36.52 (± 7.28) years old and in the position of nursing technician 121 (74.2%). Regarding the length of professional experience, there was a predominance of the period between six to ten years 69 (47.6%) and workload of 20 to 39 hours per week 143 (87.7%). Almost the total sample consisted of professionals who performed activities in direct contact with the patient 160 (99.3%).

The Cronbach's Alpha index (α) for the 12 dimensions evaluated by the HSOPSC instrument obtained a variation from 0.848 to 0.080, indicating consistency by dimensions from high to very low. It was observed that the dimensions "Feedback and communication about errors" and "Frequency of notified events" show values above 0.7, considered good. On the other hand, the dimensions "Shift change and internal transfers" and "Opening for communication" had the lowest values.
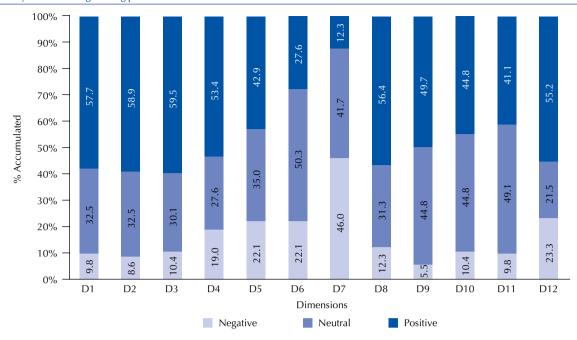
Table 1 – Distribution of Cronbach's alpha of the dimensions of the HSOPSC in the four Intensive Care Units of a public hospital – São Luis, MA, Brazil, 2017.

Dimensions	A
1- Teamwork within the units	0.423
2- Expectations and actions to promote the safety of the supervisor/manager	0.165
3- Organizational learning – continuous improvement	0.623
4- Support from hospital management for patient safety	0.104
5- General perception of patient safety	0.152
6- Feedback and communication about errors	0.702
7- Opening for communication	0.080
8- Frequency of notified events	0.848
9- Teamwork between hospital units	0.294
10- Adequacy of professionals	0.402
11- Shift changes and internal transfers	0.261
12- Non-punitive response to error	0.479

α: Cronbach's Alpha

Figure 1 shows the percentage of negative, neutral and positive responses from the 12 dimensions of PSC assessed in a consolidated manner among the four ICU surveyed. This figure represents the strong areas with potential for safety and the weak areas.

*D1: Teamwork within the units; D2: Expectations and actions to promote the safety of the supervisor/manager; D3: Organizational learning – continuous improvement; D4: Support from hospital management for patient safety; D5: General perception of patient safety; D6: Feedback and communication about errors; D7: Opening for communication; D8: Frequency of notified events; D9: Teamwork between hospital units; D10: Staff; D11: Shift changes and internal transfers; D12: Non-punitive response to error.

Figure 1 – Percentage of negative, neutral and positive responses from the twelve dimensions*, in the translated version, of the Hospital Survey on Patient Safety Culture of the four Intensive Care Units – São Luis, MA, Brazil, 2017.

It was verified in Figure 1 that none of the 12 dimensions were perceived by the ICU nursing teams as strong areas for patient safety. When considering the percentage of positive responses, it is possible to identify that the dimensions: "organizational learning and continuous improvement"; "expectations and actions to promote safety of supervisors/managers" and "teamwork within the units" presented the highest rates of positive responses, whereas the dimensions "opening for communication" and "feedback and communication about the error" obtained the lowest percentages.

Table 2 shows the degree of patient safety and its distribution between professional nursing categories and workplace. It was observed that when asked to assign a general degree of patient safety, most participants 72 (47.0%) perceived patient safety as very good and only 5 (3.3%) as very poor. It is noted that the results were similar in the four ICUs, but there was a statistically significant difference (p < 0.001) for the general degree of patient safety and the category of the nursing team, with the best assessment of the degree of safety by nursing technicians compared to the grades given by nurses.

Table 2 – Comparison of the general degree of patient safety according to the categories of the nursing team and workplace in four Intensive Care Units of a public hospital – São Luis, MA, Brazil, 2017

	Excellent		Very good		Regular		Poor		Very poor		p-value**
	n	%	N	%	n	%	n	%	n	%	
Professionals*											
Nurse	0	0.0	17	11.1	17	11.1	2	1.3	2	1.3	< 0.001
Nursing technician	29	19.0	55	35.9	26	17.0	2	1.3	3	2.0	
Total	**29**	**19.0**	**72**	**47**	**43**	**28.1**	**4**	**2.6**	**5**	**3.3**	
Setting*											
Cardiac ICU	9	5.9	14	9.0	9	5.9	2	1.3	1	0.6	
Surgical ICU	9	5.9	16	10.4	9	5.9	0	0.0	2	1.3	0.83
General ICU I	6	3.9	20	13.0	13	8.5	1	0.6	1	0.6	
General ICU II	5	3.2	22	14.2	12	7.8	2	1.3	1	0.6	
Total	**29**	**18.9**	**72**	**46.6**	**42**	**28.1**	**5**	**3.2**	**5**	**3.1**	

*Missing items were deleted
**Pearson's Chi-Square Test

When asked about the number of event notifications in the last 12 months, it can be seen in Table 3 that most 112 (68.7%) did not report any event. According to the results presented, there was a statistical difference (p < 0.001) between the number of notification events and the professional category of nursing, with a higher number of notifications being mentioned by nurses, compared to nursing technicians.

Table 3 – Comparison of the number of adverse events reported according to the categories of the nursing team and workplace in four Intensive Care Units of a public hospital – São Luís, MA, Brazil, 2017.

	None		1 to 2		3 to 5		6 to 10		11 to 20		21 or more		p-value**
	n	%	n	%	n	%	n	%	n	%	n	%	
Professionals*													
Nurse	16	9.9	10	6.2	5	3.0	5	3.0	2	1.2	3	1.9	< 0.001
Nursing technician	96	59.2	17	10.5	4	2.5	3	2.0	0	0.0	1	0.6	
Total	**112**	**69.1**	**27**	**16.7**	**9**	**5.5**	**8**	**5.0**	**2**	**1.2**	**4**	**2.5**	
Setting*													
Cardiac ICU	26	16.0	7	4.3	1	0.6	1	0.6	0	0.0	1	0.6	
Surgical ICU	24	14.7	9	5.5	2	1.2	2	1.2	0	0.0	2	1.2	0.62
General ICU I	31	19.0	4	2.4	4	2.5	4	2.5	0	0.0	1	0.6	
General ICU II	31	19.0	7	4.3	3	1.9	1	0.6	2	1.2	0	0.0	
Total	**112**	**68.7**	**27**	**16.5**	**10**	**6.2**	**8**	**4.9**	**2**	**1.2**	**4**	**2.4**	

*Missing items were deleted
**Fisher's exact test

DISCUSSION

The study revealed that no dimension assessed by the HSOPSC instrument was considered a strong area. However, most showed itself as potential areas in the context of PSC.

Regarding reliability, other researches have also identified low values for Cronbach's Alpha in some dimensions of the PSC. These values ranged from 0.52 to 0.91 in the validation study of the instrument for the Brazilian version[9] and between 0.20 to 0.8 in a research conducted at a university hospital in the northeast of Brazil[10]. The AHRQ, when carrying out validation studies of the instrument in the United States, obtained values from 0.62 to 0.85, demonstrating a variation between the dimensions that may be related to the characteristics of the population and the variability of responses of the participants[8].

The positive responses to the dimensions of the PSC show that nursing professionals perceive the error as a learning opportunity, since the dimension "Organizational learning and continuous improvement" had the highest percentage of positive responses. This finding is in line with the international literature[11-13], with this dimension presenting values even higher than those found in the research. It is known that there is a need for in-service training that promotes patient safety knowledge and encourages professionals to adhere to risk identification strategies and the adoption of measures capable of preventing or reducing the occurrence of AE[14]. This learning should be managed through actions aimed at building a positive PSC, removing the focus from blaming for learning from error, providing ways for professionals to recognize and avoid new events[10].

Another dimension with a large percentage of positive responses was "Expectations and actions of the supervisor/manager for the promotion of patient safety". This result demonstrates that the institution's efforts to promote actions related to patient safety are recognized by employees, as their suggestions for improving the quality of care are taken into account. In other institutions in Brazil[10,15], the role of management in improving PSC was not perceived by the health team, demonstrating that the PNSP has demanded efforts to strengthen safe care.

Thus, in order to build a positive safety culture, managers need to be committed to patient safety and be a model to follow because, although PSC is based on individual and collective values and attitudes, health institutions must provide an environment that ensure the necessary means for the effective safety of care, ranging from infrastructure to material, technological, financial and human resources[14,16]. In addition, the promotion of debates between managers and teams is necessary, since leaders directly influence these issues when establishing goals and strategies for service; support and promote a development culture; manage problems and plan resources aimed at quality and patient safety based on the perception of professionals who are at the front line of care[17]. Teamwork, perceived as a potential area, as well as mutual respect, are essential characteristics for safe care, as they contribute to the development of qualified care that reflects positively on daily work, influencing

the promotion of PSC, since the improvement of professionals is linked to good cooperation between teams[18].

The dimensions identified as fragile are related to communication, either within or between teams. It is known that effective communication, based on sharing and good interaction between teams, has a positive impact on nursing care. Thus, it is clear that in order to advance the promotion of a strong PSC, it is necessary to work on the fragile dimensions, improving the return of information and encouraging the notification of events.

Multidisciplinary strategies such as transfer protocols, admission forms, with clear, objective and visible information in medical records have improved the communication process between teams[19]. Therefore, improving work processes through effective communication is an important tool in combating failures and should be encouraged to achieve the quality of care and patient safety.

It is noticed that professionals hardly report health incidents, and there is still a significant difference in relation to the category that identifies them. A survey conducted in eastern Ghana showed that more than 70% of the interviewed professionals did not report any AE in the last twelve months, a scenario similar to the Brazilian one with a study pointing to the underreporting of these events[20-21]. Among the main reasons reported by health professionals for not carrying out notifications, there are: fear of pressure from managers, work overload, forgetfulness, devaluation of AE, lack of knowledge about how to perform notification and lack of feedback when these notifications are made[22].

The centralization of the notification process was also reported by the professionals, where nurses were mentioned as the main actors in this process[22], which is why there is a greater number of notifications in this category. This finding was identified in other studies on PSC in intensive care settings[21,23], where nursing technicians were the professionals who most selected the option "no event" reported in the last 12 months; indicating that the practice of notifications has not yet been rooted by the team, with the prevailing culture influencing the communication of events, as well as the feeling of fear/guilt.

The notification process needs attention and investment from managers and can be better structured in intensive care services, as it must be seen as a measure for identifying and preventing incidents[24]. The verification of the error and its notification are essential for the development and implementation of preventive actions and measures for the establishment of patient's health, in addition to being a source of data for the analysis of the occurrence of the event[25]. This commitment is very important, as the incidents related to care are present, but are little seen. Errors are difficult to discuss, as the culture of blaming and punishment is still prevalent.

In general, nursing professionals rated patient safety as very good, with nursing technicians having a better perception than nurses, showing a significant difference between categories. Research reveals that nurses with management positions tend to associate a greater degree of patient safety when compared to care nurses[17,21]. However, what was observed goes in the opposite direction, since nursing technicians who are directly linked to patient care assessed PSC better.

It is assumed that in places "where the safety culture is unequal among workers, there is a need for valuation and professional motivation, periodic discussions about the work process and practices that encourage safe care"[14]. It is possible that the nursing technicians of the analyzed ICUs feel more valued, impacting the assessment of patient safety.

The results identified are similar to those of other studies carried out in ICU across the country[17,21], where the options "excellent" and "very good" were mostly indicated by nursing technicians and, when compared with international data, one also observed a variation of the grade according to the position, where managers score higher than care professionals[26]. It denotes the importance of the availability of infrastructure, material and human resources trained and in sufficient quantity to carry out nursing care, especially in intensive care services where there is a need for speed and effectiveness in care.

As mentioned earlier, the PSC was assessed in the ICU as very good and the analysis of the dimensions of the HSOPSC points out that most of them are potential areas for a fair culture. Recognizing that health services are directly influenced by PSC and that it must be part of care environments, with the planning of actions to prevent errors, is an important step towards improving the quality of care[1].

Social, political and economic differences directly influence the evaluation of the PSC. In developed countries like China and the United States, this culture is considered more positive. A study with Ibero-American countries, including Brazil, demonstrated the efforts of these nations in the face of the occurrence of AE, reporting that European countries are better prepared for analysis and intervention regarding these events[27]. Brazil still presents a management contrast in its health system when comparing public management with private management, private administration has a better average of safety, although when analyzed by dimensions, none has reached the strength.

Thus, in order to achieve the target results in free care or with the least possible damage, it is "essential that care is provided in compliance with the uniqueness and multifaceted reality of each patient, in addition to the management support which must be operative and effective in health services"[28]. Investments in infrastructure and education, the basis for work processes, are essential to achieve and maintain the minimum safety conditions in high-risk organizations, such as health institutions.

The results presented bring important contributions to the knowledge about patient safety, understood as necessary for the development of actions in health institutions, when associated with the view of professionals with objective data as described in this study. However, it is considered as limitations of this research the fact that the PSC was evaluated only with the nursing team, as well as the time available to answer the questionnaires, due to the work routine and the extension of the instrument.

CONCLUSION

In the perception of nursing professionals, it was not possible to identify any strong areas in the dimensions that constitute the PSC, indicating that this culture needs to be developed. As for the general degree of patient safety, most participants considered it to be very good, with differences in perceptions between nurses and nursing technicians. This difference was also identified in the health incident notification process, with general underreporting of AE. The results indicate the need for the active participation of managers and professionals in the development of a fair culture, as well as constituting a diagnosis for the implementation of effective actions to improve patient safety.

RESUMO

Objetivo: Analisar a cultura de segurança do paciente entre profissionais de enfermagem da terapia intensiva. **Método:** Estudo transversal realizado em Unidades de Terapia Intensiva de hospital público. A coleta de dados foi realizada de setembro a outubro de 2017 com profissionais de enfermagem, aplicando o questionário *Hospital Survey on Patient Safety Culture*. Foram realizados os testes *Alpha de Cronbach*, Qui-Quadrado de Pearson ou Exato de Fischer (nível de significância de 5%). **Resultados:** A amostra final foi composta por 163 profissionais de enfermagem. Não foram observadas áreas fortes para a segurança do paciente. As dimensões "trabalho em equipe na unidade", "expectativas e ações do supervisor/chefia para a promoção da segurança do paciente" e "aprendizado organizacional e melhoria contínua" apresentaram os maiores índices de respostas positivas, enquanto as dimensões "abertura para comunicação" e "retorno das informações e da comunicação sobre o erro" obtiveram os menores percentuais. O grau geral de segurança do paciente foi considerado muito bom (72 = 47%) e observou-se subnotificação dos eventos, sendo a maioria realizada pelos enfermeiros. **Conclusão:** Nenhuma dimensão avaliada foi considerada área forte, porém, a maioria mostrou-se como áreas em potenciais para a cultura de segurança do paciente.

DESCRITORES

Segurança do Paciente; Cultura Organizacional; Unidades de Terapia Intensiva; Enfermagem.

RESUMEN

Objetivo: Analizar la cultura de seguridad del paciente entre los profesionales de enfermería de cuidados intensivos. **Método:** Se trata de un estudio transversal realizado en Unidades de Cuidados Intensivos de un hospital público. La recolección de datos se llevó a cabo con el Cuestionario Hospitalario sobre la Cultura de Seguridad del Paciente entre septiembre y octubre de 2017, con profesionales de enfermería. Se aplicaron las pruebas Alfa de Cronbach, Chi-cuadrado de Pearson o Exacta de Fischer (nivel de significación del 5%). **Resultados:** La muestra final estaba compuesta por 163 profesionales de enfermería. No se observaron áreas fuertes en la seguridad del paciente. Las dimensiones "trabajo en equipo de la unidad", "expectativas y acciones del supervisor/liderazgo para promover la seguridad del paciente" y "aprendizaje organizativo y mejora continua" mostraron los índices más altos de respuestas positivas, mientras que las dimensiones "apertura a la comunicación" y "respuestas a la información (*feedback*) y comunicación sobre el error" obtuvieron los porcentajes más bajos. El nivel de seguridad general del paciente se consideró como muy bueno, 72 (47%), y se observó una infradeclaración de sucesos, la mayoría de los cuales realizados por los enfermeros. **Conclusión:** Ninguna dimensión evaluada ha sido considerada un área fuerte; sin embargo, la mayoría se mostró como un área potencial para la cultura de seguridad del paciente.

DESCRIPTORES

Seguridad del Paciente; Cultura Organizacional; Unidades de Cuidados Intensivos; Enfermería.

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