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QUALITY OF NURSING CARE IN INTENSIVE CARE UNIT AT A UNIVERSITY HOSPITAL

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ABSTRACT

This cross-sectional study aimed to identify and analyze the quality of nursing care in an adult general intensive care unit (ICU) at a university hospital. Data were collected from 23 clients with ICU length of stay ≥ 72 hours, from June to November 2012, through an Operational Audit Script and quality of care classified according to the index of positivity (IP) as follows: IP = 100%: desirable care; 90-99%: appropriate care; 80-89%: safe care; 70-79%: limitrophe care, and > 70%: tolerable care. Thus, the quality of care provided was rated as tolerable, as the global average was 61.71%. Furthermore, it was found that the best IP was assigned to the item equipment use (100%) and the worst to the item physical activities (17.39%). This study established the diagnosis of the status of nursing practices in the studied environment, which is a critical step in planning strategies and actions aimed at improving the quality of care provided.

Descriptors: Quality of health care. Nursing care. Intensive care. Nursing assessment. Nursing audit.

RESUMO

Este estudo transversal objetivou analisar a qualidade da assistência de enfermagem numa unidade de terapia intensiva geral para adultos de um hospital escola. Os dados foram coletados de 23 clientes com permanência na unidade ≥ 72 horas, de junho a novembro de 2012, por meio de um Roteiro de Auditoria Operacional e a qualidade dos cuidados foi classificada segundo o índice de positividade (IP) da seguinte forma: IP = 100%: cuidado desejável; de 90-99%: adequado; de 80-89%: seguro; de 70-79%: limítrofe; e < 70%: cuidado sofrível. Assim, a qualidade da assistência prestada foi sofrível, pois a média global foi 61,71%. Ademais, o melhor IP foi atribuído ao item "utilização de equipamentos" (100%) e o pior ao item "atividades físicas" (17,39%). Este estudo estabeleceu o diagnóstico situacional das práticas de enfermagem no cenário estudado, etapa fundamental para o planejamento de estratégias e ações que visem à melhoria da qualidade da assistência prestada.

Descritores: *Qualidade da assistência à saúde. Cuidados de enfermagem. Terapia intensiva. Avaliação em enfermagem. Auditoria de enfermagem.*
Título: *Qualidade da assistência de enfermagem em unidade de terapia intensiva de um hospital escola.*

RESUMEN

Este estudio transversal tuvo como objetivo analizar la calidad de la atención de enfermería en una unidad general de cuidados intensivos para adultos de un hospital escuela. Los datos fueron recolectados de 23 clientes, de junio a noviembre de 2012, a través de un Guión de Auditoría Operacional y la calidad de la atención de clasificados de acuerdo con el índice de positividad (IP) de la siguiente manera: IP = 100%: cuidado deseable; 90-99%: adecuado; 80-89%: seguros, 70-79%: límite, y > 70%: atención sufrible. Así, la calidad de la atención proporcionada ha sido calificada como sufrible, pues el promedio global fue del 61,71%. Además, se encontró que el mejor IP fue asignado al ítem utilización de equipamientos (100%) y el peor al ítem actividades físicas (17,39%). Este estudio estableció el diagnóstico situacional de las prácticas de enfermería en el ambiente estudiado, etapa fundamental en la planificación de estrategias y acciones dirigidas a mejorar la calidad de la atención prestada.

Descriptores: *Calidad de la atención de salud. Atención de enfermería. Cuidados intensivos. Evaluación en enfermería. Auditoría de enfermería.*
Título: *Calidad de la atención de enfermería de unidad de cuidados intensivos de un hospital escuela.*

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INTRODUCTION

Technological advances and greater access to information led to changes in the delivery of services and in the behavioral pattern of society. Thus, individuals refused to accept anything offered and demanded for better quality services and products. Accordingly, the nursing team is constantly facing the challenge of delivering effective health care to meet customer needs[1].

Nursing professionals are required to be aware of the behavior they should adopt in the face of the difficulties encountered in their daily practice, in order to promote paradigm shifts for professional improvement and strengthening[2]. As a developing science, nursing needs to promote the improvement of its knowledge and skills to ensure better health care[3].

In Intensive Care Units (ICUs), the development of holistic and humanistic care by the health team has been impacted by some intrinsic characteristics of this environment, such as technological diversity, management of stressful events in daily life, death as a frequent occurrence and the prioritization of technical-biological aspects associated to life maintenance[4].

The quality of care is considered a complex process that involves the permanent identification of factors to be improved with respect to the dynamics of work of the nursing staff. Therefore, nurses are required to implement actions and create tools for the systematic assessment the quality of the care provided[5].

Like other managers, nurses are responsible for managing the department or unit in which they carry out their activities and disclose the results obtained by means of indicators [2,5]. Regardless of the quality programs and evaluation models to be adopted, the nursing staff should be committed to the provision of appropriate care, ensuring its quality, and especially the satisfaction of the customer and family members, since it directly impacts the results[1,2]. The qualitative assessment of a service is a potentially powerful administrative strategy which, if properly used, can become critical to the organization[3].

The awareness of the need to offer high quality services in health is no longer a single or sporadic action, but a technical and social imperative[1]. However, there are still some bottlenecks such as the lack of investigation on the main issues regarding service provision and care by the nursing team, non-use of research results to modify nursing practices to benefit the clients, nurses do not have enough training to incorporate the scientific investigation to the care provided[6].

With the introduction of methods for evaluation of quality standards regulated mainly by the norms of the *International Organization for Standardization* (ISO) and by standards of hospital accreditation tools that can be used by health institutions to guide the organization and the continuous improvement of services and performance parameters become available[3].

The following question is then posed: taking into consideration the particularities of an ICU, are nurses providing quality care? Therefore, the aim of this study was to assess the quality of nursing care in a general adult ICU of a university hospital.

METHODS

This is a cross-sectional study conducted in a general adult ICU from a University Hospital of Mato Grosso do Sul, within the scope of Brazil's Unified Health System. The study was conducted in the June-November 2012 period when the unit had eight active beds.

The study made use of convenience sampling, with the inclusion of clients who stayed in the unit for more than 72 hours and whose legal guardian agreed to participate by signing the Informed Consent Form (TCLE). This is justified by the fact that critical patients are um a state of physical and emotional fragility. Indigenous people and institutionalized individuals were excluded.

Data collection was performed by means of a check-list form adapted from the operational audit script elaborated by the Advisory Board for Quality Control of Nursing Care of the University Hospital of Londrina-Paraná, and described by Haddad[7]. The adaptation of the instrument was made by means of a pilot test with adjustments to the local scenery. Six sub-items were removed from the original form because they were not part of the routine of the sector or for being considered subjective and difficult to evaluate (the

bedridden patient is in the correct position, the orthopedic traction apparatus is correctly placed, casts and braces are properly maintained; boards for feet and sandbags are correctly placed; there is enough oxygen, the inhaler device is properly switched, and the chest drain is correctly placed) and two other items were included (comfort pads correctly applied and chest drain fixed securely). Thus, the form was composed by eight items and 61 sub-items, namely:

Item 1 – Hygiene and Comfort, with eight sub-items: oral care; hair combed; facial shaving; trimming of nails of hands and feet; no skin irritations; no obstructions in probes and drains; use of comfort pads; clean and dry bandages and clean and well-maintained beds;
Item 2 – Physical activities with two sub-items: scheduled change of position for dependent clients; formation of pressure ulcer (PU) in the past 24 hours;
Item 3 – Physical Safety, composed of twelve sub-items: complete and correct identification of the patient; safe accommodation on wheelchair or armchair; proper position of the bars of the bed; no falls from bed over the past 24 hours; clean and properly placed physical restraints for the limbs; call bell within reach; safety and suitability of the furniture in the box; clean objects in the box; contaminated objects in the box; suitable electrical equipment in the box; clean environment; and schedule of exams;
Item 4 – Nutrition and Hydration, with fifteen sub-items: change in microdrop cannulas and infusion pump every 72 hours as recommended in the studied sector;;date and installation of central venous cannulas (PVC) every 24 hours; no clotted blood inside the cannulas for introduction of serum/medications, proper identification of the installed cannulas for serum/medications; identification of peripheral venous punctures performed; change of peripheral venous punctures every 72 hours; permeability in external catheters; no seroma in the upper limbs; change of the cannulas for administering the meals every 24 hours; cleaning of the cannulas for administering meals; use of colored cannulas for meals, with the bottle with food placed above the patient's head;
Item 5 – Oxygenation and Ventilation, with four sub-items: protection and appropriate maintenance of inhalers; installation and proper change of nebulizers; no secretion in tracheotomy; cleaning of tracheotomy dressing;
Item 6 – Use of Equipment, with only one sub-item concerning the correct use of equipment (heart rate monitor, infusion pumps, pulse oximeter and mechanical ventilator);
Item 7 – Secretions, with seven sub-items: dressing or appropriate collection device in Penrose drain; proper filling and positioning of ostomies and collection bags; adequate positioning and maintenance of negative pressure in vacuum drain ports; proper identification of chest drain; correct fixation of nasogastric/nasoenteral probe; and proper fixation of indwelling catheters (CVD);
Item 8 – Intensive Care Unit, composed by seven sub-items: nursing prescription for all patients; minimum two daily records of evolutions; record of physical examination per shift; record of control of vital signs and water balance, with at least four daily notes; beds with removable headboards and side rails; closed system of urine collection; sufficient clothing according to the demand; preventive care for UP; no obstruction, no skin irritation, and no infections developed from drains, collection devices, probes and catheters; family counseling on therapeutic routines and care provided; noise control in the sector; and hand antisepsis of the staff before and after procedures.

There were three response options for all sub-items: *yes*, *no and not applicable*, where only one possible answer was allowed. The check-list was used after the provision of routine nursing care in the morning shift, by means of observation of the material conditions and of the equipment used by the client during the stay in the ICU and during physical examination. Each observation was performed for approximately

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40 minutes and two well-trained nurses were responsible for data collection, with only one observation and physical examination for each participant. The nursing professionals were aware of the purpose of the study, but not of the items evaluated to ensure more reliable results. The data obtained were gathered and classified in databases in the *Software Microsoft Office Excel®* 2010.

Statistical analyzes of the following variables were performed: mean age and percentage of the pathologies that led to ICU admission. In the determination of the quality of the care assessed using the Operational Audit Script, the relative frequency of positive responses obtained for all items and sub-items was calculated to identify the Index of Positivity (IP). Following the calculation of the IP the items and sub-items were classified based on previous studies[7,8] that classified care according to the IP obtained, with IP of 100% – Desirable care; IP between 90 and 99% – Appropriate care; IP between 80 and 89% – Safe care; IP between 70 and 79% – Limitrophe care and IP below 70% – Tolerable care. For the purposes of this study only the items that obtained IP equal to or higher than 70% (IP≥70%) were considered quality care.

All ethical aspects recommended by Resolution No 196/96 of the National Health Council regarding research with humans were observed. This study was approved by the Ethics Research Committee of Universidade Federal de Mato Grosso do Sul under protocol no 48654/2012.

RESULTS

During the study period, 30 subjects met the inclusion criteria. Of these, three were indigenous people and four died before data collection, and, thus, were excluded and the sample was composed of 23 clients, with 52.17% (n=12) being male individuals. The mean age was 56.59 years ± 21.83. The prevalent medical diagnoses at the ICU were respiratory (30.4%), digestive (21.7%), neurological (17.4%), infectious and parasitic (17.4%) diseases, and other disorders accounted for 13.1%. The results obtained on the form for each item are described in Table 1.

DISCUSSION

Of the care items assessed, only item 6 (**Use of Equipment)** obtained a desirable quality level. This indicates that regarding this aspect, the ICU studied is consistent with the recommendations of the literature on the importance of the use of the available equipment to monitor the different organs of the individuals during intensive care practices, in order to maintain constant surveillance of the vital functions of the client[9].

Items 1 (**Hygiene and Comfort)** and 3 (**Physical Safety)** showed an IP higher than 70% and were

Table 1 – Operational Audit Script and respective Indexes of Positivity and Classification of Quality. Campo Grande, MS, 2012.

Operational Audit Script	Index of Positivity(%)	Classification of Quality*
1 – Hygiene and Comfort	77.45	Limitrophe
2 – Physical Activity	**17.39**	**Tolerable**
3 – Physical Safety	71.06	Limitrophe
4 – Nutrition and Hydration	63.97	Tolerable
5 – Oxygenation and Ventilation	61.70	Tolerable
6 – Use of Equipment	100	Desirable
7 – Elimination of secretions	63.76	Tolerable
8 – Intensive Care Unit	**46.37**	**Tolerable**
Global Average	**61.71**	**Tolerable**

*Desirable: 100%; Appropriate: 90-99%; Safe: 80- 89%; Limitrophe: 70-79%; Tolerable: < 70%.
Source: Research data.

considered quality care services. However analysis of the sub-items of these items separately showed that the trimming of nails of hands and feet (IP = 52.1%), use of comfort pads (IP = 60.8%), no accumulation of clean materials in the box (IP = 8.69%) and patient's bell within reach in the box (IP = 0%) are still of low quality.

These points directly reflect the commitment of the nursing staff towards the clients admitted in the sector, because these individuals are often totally dependent on the care provided by the nursing staff, and these professionals are responsible for ensuring hygiene and a comfortable and well-organized environment for the client. It should also be stressed that these are basic practices whose implementation does not require complex scientific knowledge[8].

The lack of call bells in the boxes is another matter of concern. This was a structural problem identified, which directly impacts nursing care. The Board Resolution No 50/2002[10] recommends the availability of a means of communication between the client and the nursing staff; it was observed that since ICU clients are usually in a state of unconsciousness/coma, the need for this device is not perceived. However, albeit in small numbers, some clients admitted in this sector have some level of consciousness, and, thus, need a bell within their reach[8]. Although the item **Physical Safety** has been classified as quality care, its IP was lower limitrophe, indicating the need for improvement in this type of care.

Item 2 (**Physical Activities)** showed the worst IP (17.39%) of all the assessed items. Separate analysis of its sub-items showed that scheduled change of position for dependent clients was not performed by the nursing team (IP = 0%) and that no pressure ulcer obtained an IP of 34,7%.

These sub-items are closely related. Lack of mobility is one of the main risk factors for the development of pressure ulcers (PU), for it predisposes the client to tissue damage due to the pressure in areas of bony prominences. Thus, the bedridden dependent client is more vulnerable to the emergence of these ulcers when proper care is not provided. Aiming to preventing PU, the nursing staff must change the position of dependent clients to ensure their correct position in bed [11]. The incidence of this type of ulcer is considered an indicator of care quality and safety for the client[12].

Item 4 (**Nutrition and Hydration)** was also classified as tolerable quality care obtaining an IP below 70%. The sub-items that most contributed to this negative result are those related to the change of cannulas of infusion pumps every 72 hours (IP = 8.6%), of PVC every 24 hours (IP = 21.7%) and their correct identification (IP = 4.3%) and another sub-item related to the correct identification of the installed cannulas for serum (IP = 21.7%).

This point is directly related to the development of a safe care practice. The change of cannulas is recommended for the prevention of primary infections of the bloodstream, one of the types of infection often related to health care and which is associated to increased mortality rates, increase in length of hospital stay and costs. The nursing team should be alert to this issue. The mere fact of being admitted to an ICU potentiates this risk; there is evidence of a mortality of 69% when these two factors are associated[13].

The variable identification of the medications administered to the clients is a matter of concern, because it was often incomplete of even absent during some observations. There is nationwide concern with client safety in a hospital setting; although this care provides benefits for those who need it, errors may occur with serious consequences[14].

This study did not assess the occurrence of adverse effects related to non-identification of the medications administered to the clients. However, there is a high percentage of preventable adverse events that occur in Brazilian university hospitals that highlight the dimension and particularities of patient safety issues[15]. The sub-item correct identification of medications administered in the ICU of the study was rated as tolerable quality indicating the need for the development of strategies that make it possible to solve the problems encountered and the creation of a method of safe health care practices .

In item 5 (**Oxygenation and Ventilation)** that obtained an IP of 61.7%, sub-item installation and proper change of nebulizers (IP = 0%) was the key factor for this negative result. It was not possible to prove that this change was not performed, but as there was no correct identification with date and time, the negative answer was considered the best alternative for this question during observation.

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Humidifiers are used to prevent dryness and irritation of the upper airways. They should be kept filled with sterilized water to reduce the risk of bacterial proliferation and be replaced every seven days, with the change correctly identified with date and time[16].

In item 7 (**Elimination of secretions**) also classified as tolerable, the sub-item correct fixation of CVD (indwelling catheters) obtained an IP of 9.09%, being the lowest index of all assessed sub-items. One study that aimed to assess the predisposing factors for urinary tract infections associated to the maintenance of this invasive device in patients of an ICU in patients of the inland of São Paulo demonstrated that fixation was the component with the lowest index of adequacy, and that despite being a simple technique, it was not sufficiently incorporated to clinical practice[17]. It is recommended that CVD fixation in women occurs in the inner thigh to prevent a possible strain in the urogenital triangle and for men in the lower abdomen to reduce the urethral curve, eliminating the pressure at the scrotal penile shaft, minimizing the risk of fistula[18].

In the assessment of item 8 (**Intensive Care Unit**) the most negative sub-items were nursing prescription for all patients; minimum two daily records of evolutions and record of physical examination per shift performed by nurses, both with IP equal to 0%; these sub-items are directly associated to the Nursing Process.

There are many issues that limit the implementation of the Nursing Process, including high workload, lack of professionals, intrinsic relation with administrative issues and even poorly qualified professionals[19,20]. However, it is imperative that nurses devise a customized plan of care for the clients of an ICU. This requires commitment, responsibility in the execution and dissemination of knowledge aimed to the improvement of the activities performed by the nursing staff and the restoration of the patient's health[19].

It should be emphasized that the duties of the nurse in this context are not restricted to the elaboration and implementation of preventive protocols, but also to periodic assessment of adherence to the proposed measures, application of clinical indicators, continuous education and commitment with quality and/or improvement of structural issues and organizations, as well as personnel and materials.

The results obtained in this study are limited to a local observation, and, thus, do not reproduce the global status of the care provided by ICU nursing professionals. Further studies with larger samples in different ICUs of different regions of the country are needed for better clarification.

CONCLUSION

The quality of nursing care in the ICU investigated in the present study was classified as tolerable. Only the item use of equipment was classified as desirable, and the items hygiene and comfort and physical safety, despite obtaining an IP higher than 70%, indicate the need for improvements. The other items assessed obtained IP indexes lower than 70% and indicate that the current practices should be revised and revamped to achieve quality.

This study allowed establishing the diagnosis of the status of nursing practices in the environment of the study, which is a critical step for the planning of educational activities based on the local community, aiming to improve the quality of care provided. Moreover, since this is a field for graduation and post graduation in different health areas, the practices adopted in university hospitals can be reproduced in different settings for those who are being trained.

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