

ERROR CHARACTERIZATION IN INTENSIVE CARE NURSING*

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ABSTRACT: This study aimed to identify errors in nursing care in an intensive care unit, according to the nursing staff, and discuss the main ones according to Human Error Theory. This was a cross-sectional study, and the scenario was an intensive care unit of a hospital in Rio de Janeiro state – Brazil. Participants were 36 professionals of the nursing team. Data were collected in structured interviews, from July to September 2013 and analyzed using Epi Info™. The major mistakes in nursing care included: medication error, not lifting the bed railings, loss of catheters, probes and drains (cited by 87% of respondents); accidental extubation (72%); and inadequate hand hygiene (67%). The severity of the errors identified involve the care and recovery of clientele. It emphasizes the need for notification and for prevention measures, contributing to the culture of safety and increasing care quality.

DESCRIPTORS: Patient safety; Medical errors; Nursing care; Intensive care unit.

CARACTERIZAÇÃO DE ERROS NA ASSISTÊNCIA DE ENFERMAGEM EM TERAPIA INTENSIVA

RESUMO: Objetivou-se identificar os erros na assistência de enfermagem em um Centro de Terapia Intensiva, de acordo com a equipe de enfermagem, e discutir os principais à luz da Teoria do Erro Humano. Estudo transversal cujo cenário foi um Centro de Terapia Intensiva de um hospital do estado do Rio de Janeiro - Brasil. Participaram 36 profissionais da equipe de enfermagem. Os dados foram coletados em entrevista estruturada, no período de julho a setembro de 2013, e analisados através EpiInfo™. Dentre os principais erros na assistência de enfermagem destacam-se: erros de medicação, não elevação das grades do leito, perda de cateteres, sondas e drenos, citados por 83% dos entrevistados; extubações acidentais (72%); e higienização inadequada das mãos (67%). A gravidade dos erros identificados comprometem a assistência e a recuperação da clientela. Enfatiza-se a necessidade de medidas de notificação e prevenção, estimulando-se a cultura de segurança e aumento da qualidade assistencial.

DESCRIPTORIOS: Segurança do paciente; Erros médicos; Cuidados de enfermagem; Unidades de terapia intensiva.

CARACTERIZACIÓN DE ERRORES DE ATENCIÓN DE ENFERMERÍA EN TERAPIA INTENSIVA

RESUMEN: El objetivo fue identificar errores de atención de enfermería en un Centro de Terapia Intensiva, según el equipo de enfermería, y discutir los principales a la luz de la Teoría del Error Humano. Estudio transversal realizado en un Centro de Terapia Intensiva de hospital del estado de Rio de Janeiro – Brasil. Participaron 36 profesionales del equipo de enfermería. Datos recolectados mediante entrevista estructurada entre julio y setiembre de 2013, analizados por software EpiInfo™. Entre los principales errores de atención de enfermería se destacan: errores de medicación, no elevación de gradas de lechos, pérdida de catéteres, sondas y drenajes, citados por 83% de los entrevistados; extubaciones accidentales (72%); e higienización inadecuada de manos (67%). La gravedad de los errores identificados compromete la atención y recuperación de los pacientes. Se resalta la necesidad de notificación y prevención, estimulando la cultura de seguridad y el aumento de la calidad de atención.

DESCRIPTORIOS: Seguridad del Paciente; Errores Médicos; Atención de Enfermería; Unidades de Cuidados Intensivos.

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● INTRODUCTION

Discussions on patient safety in hospitals constitute a global trend and issues involving human error in nursing care have been publicly addressed.

According to the World Health Organization (WHO), all patients have a right to safe and effective care. However, the occurrence of errors directly undermines patient safety. Unintentional damage during health treatments are not new and the earliest record of this problem dates from the 17th century B.C. At that time, the error response was clearly and solely punitive⁽¹⁾.

Although Hippocrates stated over two thousand years ago, “first, do no harm”, until recently the adverse events, errors and incidents related to health care were considered inevitable or recognized as acts performed by poorly trained personnel. Today, solutions to improve patient safety have a totally different approach, seeking to safe care through teamwork and effective communication between professionals and patients⁽¹⁻²⁾.

The publication of “To Err is Human: Building a Safer Health Care System” at the end of the 90s demonstrated, from the analysis of large epidemiological studies, the high incidence of adverse events in hospitals, often caused by human error⁽³⁾. Thus, the need to rethink the care models used to ensure patient safety is undeniable.

Given the global impact of this publication, WHO established a working group in order to assess patient safety in health services convening the World Alliance for Patient Safety⁽⁴⁾ in 2004.

In Brazil, discussions on the topic began in 2002 with the creation of Brazilian Sentinel Hospital Network by the National Surveillance Agency (ANVISA). Based on the experience of this network, National Program of Patient Safety (PNSP) was launched in 2013, established by Decree 529/13, of the Ministry of Health and Collegiate Board Resolution (RDC) 36/2013, establishing actions for patient safety in health services⁽⁵⁻⁶⁾.

Regarding nursing care in intensive care units (ICU), there is a need for a greater investment in patient safety and in the identification and prevention of errors, since this clientele requires specific care, with different technologies, devices and a larger professional contingent.

The large number of admissions to intensive care units in Brazil, totaling 41,965 in the period of 2011 to 2012 is noteworthy. This highlights the need for discussion regarding the occurrence of errors and possible preventive measures⁽⁷⁾.

In health care, error episodes can cause serious damage to clientele, as well as affect hospital institutions qualitatively and quantitatively. For health professionals, the error is often accompanied by feelings of shame, guilt and the fear of punishment. This contributes to the omission of discussion of such episodes, with the loss of the chance to know them and treat them accordingly.

In the theory of human error, also known as “Swiss Cheese Model”, mistakes can be studied in two aspects: the personal approach and approach system. Each has its own model and therefore requires a different management philosophy. This indicates the need for further strategies to prevent errors that cause harm by applying multiple steps that function as a safety net⁽⁸⁾.

By understanding the error occurrence, it is possible to identify it, and encourage the professional to perform the notification properly. Because of the strong punitive culture in our society, occurrences are mostly underreported which prevents real knowledge of the problem and the adoption of appropriate preventive measures.

The study is also justified by the extreme relevance of this topic today, coupled with the fact that the errors which are still discussed in hospitals are confronted by a strong punitive culture, which in turn encourages neglect. The patient safety protocols strive to replace feelings of guilt and shame by a new approach. This approach involves rethinking the care process with the aim of anticipating the occurrence of errors before they can cause harm to patients⁽²⁾.

From this issue, emerged the following research question: “What are the main mistakes in nursing

care in the ICU pointed out by the team?" This study aimed to identify the errors in nursing care in the ICU according to the nursing staff, and also to discuss the main errors identified in the light of human error theory.

● METHOD

This was a cross-sectional and exploratory study, set in the ICU of a general hospital, at a federal administrative level, in Rio de Janeiro [, Brazil. It was chosen because it is an institution that integrates the Brazilian Sentinel Hospital Network for the reporting of adverse events, and it has an important historical and social nature.

The ICU nursing team consisted of 83 professionals, 27 nurses and 56 nursing assistants. The selection of participants was performed according to inclusion and exclusion criteria which were pre-established. Inclusion criteria were: being a fixed professional in the ICU and acting in the sector for more than six months, considering the need of participant's experience in the studied quotidian. Exclusion criteria were: being away from the ICU during the period of data collection because of vacation and various leaves.

After the application of these criteria, 63 professionals from the team were selected (22 nurses and 41 nursing assistants), and 36 participated in the study, including 13 nurses and 23 nursing assistants, who worked in day and night periods. Among the selected professionals, six refused to participate because of the selected theme, reporting discomfort with the discussions on human error and their possible occurrences in ICU. These professionals, however, did not oppose the study in the sector and encouraged the participation of colleagues. The other 21 professionals were not available because of multiple work activities and duty changes.

The profile of participants was characterized from a survey of the following variables: gender, professional category, age, training time, and time in the ICU. Data were collected from July to September 2013, through individual interviews using a structured interview format containing closed questions. The interviews aimed to characterize the active nursing staff in the ICU and identify their mistakes in nursing care.

Data collection instrument was developed by the authors, based on a literature review about the main errors of nursing care in intensive care, such as: medication errors, not elevating bed railings, accidental extubation, loss of catheters, probes and drains, not conducting decubitus change, not performing healing, lack of checks of nursing and medical prescriptions, misuse of equipment, equipment alarm used improperly, inadequate nursing records, inadequate hand washing, improper use of individual protection equipment, and inadequate identification of patients, among others. Thus, it was up to respondents to point out the errors identified in daily care and cite those observed by them but which did not appear on the form.

For collection, a pilot test was carried out in July 2013, with the aim of improving the plans both on the content of the data regarding the procedures followed, and validate the instruments used. There was no need, however, to change the tools and techniques used.

Before starting data collection, participants received information about the study and its objectives, being assured that the collected content would only be used with the participant's consent and by signing the Terms of Consent.

For data analysis, the software Epi Info™ version 3.5.2 was used with descriptive measures, absolute and relative frequencies. The results were analyzed according to the critical view of the authors, based on scientific literature and the theory of human error by James Reason, the theoretical framework of this study.

As for ethical and legal aspects, this study was submitted to the Ethics Committee in Research of the origin institution and institution, through Brazil Platform, and was approved as opinions: 229.926 and 000.493 of 05/13/2013.

● RESULTS

Characterization of study participants

Participants of the study were 36 members of nursing staff, 13 were nurses (36%) and 23 were nursing assistants (64%).

From the respondents, 81% (n=9) were females and 19% (n=7) were males. Ages varied from 30 to 59 years old, 64% (n=23) were between 30 and 39 years, 28% (n=10) between 40 and 49 years old, and 8% (n=8) were between 50 and 59 years old.

Regarding professional training time, 41% (n=15) of respondents had less training time or equal to 10 years, 39% (n=14) had 11 to 20 years, 17% (n=6) had from 21 to 30 years and 3% (n=1) had increased formation time not exceeding 31 years. Of the total respondents, 73% (n=26) worked in the ICU from 04-10 years, 19% (n=7) were active for less than 03 years, and 8% (n=3) from 21 to 30 years.

Nursing care errors in intensive care

Error identification was performed according to reports of the professionals in the nursing team. Occurrences were varied and nursing staff recognized and understood their importance and gravity. The identified errors are reported in Table 1.

The severity of identified occurrences is highlighted, with particular emphasis on medication errors, not lifting the bed railings, loss of catheter, probes and drains, and inadequate use of PPE, which was cited by 83% (n=30) of respondents. However, all errors undermine the assistance and recovery of the patient and can cause damage (or adverse events) and increase the length of hospital stay.

Other cited errors also deserve special attention, as they were reported by 42% (n=15) of professionals, such as misuse of water balance, errors in shift changes, lack of humanization with patients and families, not recording vital signs and not lifting headboards of beds.

The occurrence of error directly compromises the safety of the patient in hospitals. In intensive care, this is directly related to the severity of the patients' condition and the degree of their dependence on the nursing staff. In this study, the identified occurrences are worrisome, however the causal factors should also be identified as requiring specific treatment.

Table 1 – Errors in nursing care in ICU according to nursing staff. Rio de Janeiro, RJ, Brazil, 2013.

Errors in nursing care in ICU	%
Medication errors	83
Not raising bed railings	83
Loss of catheters, probes and drains	83
Inappropriate use of personal protective equipment (PPE)	83
Accidental extubations	72
Inappropriate hand hygiene	67
Handling equipment inappropriately	64
Inappropriate nursing records	57
Not performing decubitus change	56
Lack of checks of nursing prescriptions	50
Inadequate patient identification	47
Not checking medical prescriptions	44
Equipment alarm incorrectly used	44
Other errors	42
Not performing dressings	36

● DISCUSSION

Most of the participants were female, which is still a common occurrence, because despite all the social changes, nursing is still considered an eminently female profession. In analyzing the gender, professional category, age, training time and performance time in the ICU, a heterogeneity of the group was found. This can be a positive factor, or create difficulties and conflicts, influencing learning and the formation of successful and cooperative relationships. A heterogeneous group may also require more time and have many communication problems, a fact cited by professionals⁽⁹⁾.

Given the multiplicity of activities performed by the nurses in seeking to manage care in cooperation with the nursing team, there is also the need to manage conflicts, an inherent condition in nursing work processes. This competence is also needed to analyze nursing work in the health field, which is developed mostly as a collective work⁽⁹⁾.

The ability to work well in a heterogeneous group is fundamental to all professionals, especially nurses who are recognized as leaders of the nursing team. The need to respect cultural diversity and recognize how it can be positive and profitable if used well was also highlighted. However, heterogeneity of the group can also interfere directly in the learning and training processes. Styles of older nurses should be considered, since they learn differently from recent graduates⁽¹⁰⁾.

It is essential to encourage the integration of teamwork, encouraging the efforts and providing an environment that leads to good relationships. An integrated team can adapt well to the division of labor; preserve technical differences between specialized work; question the unequal valuation of different specialized work; question the unequal valuation of different works and their agents, decentralize decision making in teams and the dynamics of work; exercise professional autonomy taking into account the interdependence of various professional areas, and build a common care project⁽¹¹⁾.

Thus, it is important that nursing managers understand the need to foster a positive work environment where there is respect and that helps the team members in their transitions and execution of their duties.

Regarding errors in nursing care, it is important to highlight the severity of injuries which may directly affect patient safety. Medication errors, not lifting the bed railings, loss of catheters, probes and drains and inadequate use of personal protective equipment (PPE) were the most common errors mentioned by professionals.

Medication errors are directly related to the basic principles of drug administration traditionally linked to nursing such as, right patient, right dose, right time, right administration and right preparation. These errors can be defined as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is under control of healthcare professional, patient or consumer⁽¹²⁾.

Not lifting bed rails and loss of catheter, probes and drains cause harm to patients. These occurrences often relate to technical and organizational causes rooted in institutional culture.

Fall prevention is a focus of ANVISA and is present in Patient Safety Plan in Health Care (PSP), established by RDC 36/2013. Fall can cause injury and other effects to patients, prolonging the stay and hospital costs, with consequent legal liability of health professionals and the institution^(6,13).

Regarding not using PPE and inadequate hand washing, this creates a risk to which the nursing staff is exposed daily. This results from disregarding the established biosecurity standards, and contributes to increase of hospital infection rates. Hand washing is considered one of WHO programs for patient safety.

Accidental extubation is also an important issue, related to nursing care and procedures such as bed baths, performing diagnostic tests, changes in position, tube clamping exchanges and internal transportation of patients⁽¹⁴⁾. It can generate several consequences such as hypoxemia, atelectasis, pneumonia associated with mechanical ventilation, tracheal injury, hemodynamic instability and cardiac arrest⁽¹⁵⁾. This is a stress factor for the patient and for the entire multidisciplinary team involved.

Improper use of equipment and alarms must also be discussed and this is related to the use of medication infusion pumps. Improper use of these pumps interferes directly in the administration of medicines, as these devices can be programmed incorrectly, causing the drug to be administered earlier or later than planned.

The lack of checks of nursing and medical prescriptions and improper use of water balance are directly related to incorrect nursing practices since health care is provided but not registered, leading to a misinterpretation by the multi-professional team or a replication of this care.

Not performing decubitus change, inadequate positioning in bed and not performing dressings may also be related. They interfere directly in skin health maintenance and the prevention of hospital infections. Failure to perform certain procedures exposes patients to unsafe care practices, and a delay in hospital discharge.

Regarding the theory of human error and the "Swiss Cheese Model"⁽¹⁶⁾, all cited errors can be related to active faults and latent conditions. Active faults are represented by unsafe acts committed by people who are in direct contact with the system and with patients, they are associated with everyday care errors, such as medication errors, accidental extubation and not lifting bed rails. Latent conditions can be represented by intrinsic system disorders, such as lack of standards, protocols and routines and appropriate missing and/or inadequate professional distribution.

Active failures and latent conditions when combined cause accidents, which can cause damage to the clientele. Human errors can be prevented but not eliminated and require careful management⁽¹⁶⁾.

Knowing and recognizing the error is the first step for its prevention. Health professionals are fallible beings with limitations and imperfections. Thus, human error must be understood in its entirety, considering what factors are responsible for the events, such as professional overload and exhaustion, lack of knowledge about the event, lack of communication, lack of a safety culture in the organization and infrastructure of the institution.

● FINAL CONSIDERATIONS

This study identified errors in nursing care in intensive care units in the daily activities of the nursing team. According to these professionals, mistakes are varied, known and recognized. Errors are identified and highlighted as interfering directly in the care and recovery of the clientele. They may cause damage and cause lengthier hospital stays and a delay in the return to activities of daily living.

Recognition of error is fundamental to its prevention, as well as in encouraging an organizational safety culture. It emphasizes the need for notification and prevention measures, encouraging patient safety, which will certainly contribute to a higher care quality. However, it is necessary that the whole team understands the real need of not pointing fingers and that this study is just a measure to solve errors in their daily life.

Further discussion on errors is essential in the referred institution and all others. Overturning taboos, diagnosing and understanding events make it possible to identify causes and take appropriate prevention measures. Among the limitations of the study, there was the difficulty in carrying out interviews, given the workload of the nurses and the reduced quantity of professionals in the studied scenario.

It is important for this study to be replicated in other institutions, as this will certainly contribute to recognition and prevention of errors in all areas.

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