

Patient identification through electronic wristband in an adult general intensive care unit

Identificação do paciente por pulseira eletrônica numa unidade de terapia intensiva geral adulta

Identificación del paciente mediante pulsera electrónica en una unidad de terapia intensiva general de adultos

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Abstract

Background: The World Health Organization considers patient safety (PS) to be a key topic for debate. One of the goals is to ensure the correct patient identification in order to prevent PS-related adverse events.

Objectives: To analyze the procedures for identification of critically-ill patients using a wristband, and to describe the information recorded by nursing professionals regarding wristband placement, integrity, and readability.

Methodology: Descriptive, observational, documentary, quantitative study conducted at an intensive care unit (ICU) in Brazil. Data were collected using a checklist with objective questions on the use of patient wristbands and nursing records. Simple statistics were used for analysis. The study was approved by the Research Ethics Committee of the Pedro Ernesto University Hospital, CAAE: 1.517.652.

Results: Patients had an identification wristband in 96% of the observations and information regarding the use of a wristband was recorded in 75% of the files.

Conclusion: The ICU shows a high adherence to the use of a patient wristband. The staff should receive training on the need for medical patient records.

Keywords: nursing; patient identification systems; patient safety

Resumo

Enquadramento: A segurança do paciente (SP) é foco de debate pela Organização Mundial da Saúde. Uma das metas é a identificação correta do paciente, com vista a prevenir eventos adversos relacionados com a SP.

Objetivos: Analisar os procedimentos de identificação de pacientes críticos pelo uso da pulseira. Caracterizar os registos realizados pelos profissionais de enfermagem quanto à localização, integridade e legibilidade.

Metodologia: Estudo descritivo, observacional, documental, quantitativo, realizado numa unidade de terapia intensiva (UTI) no Brasil. Os dados foram colhidos através de uma *checklist* com perguntas objetivas, relacionadas com o uso da pulseira pelo paciente e com os registos de enfermagem. Para análise, utilizou-se a estatística simples. Estudo aprovado pela Comissão de Ética em pesquisa do Hospital Universitário Pedro Ernesto, CAAE: 1.517.652.

Resultados: Em 96% das observações, os pacientes estavam com a pulseira de identificação e em 75% dos prontuários haviam anotações sobre a presença da pulseira.

Conclusão: A adesão ao uso da pulseira é relevante na UTI. É necessária capacitação da equipa focada na necessidade dos registos médicos dos pacientes.

Palavras-chave: enfermagem; sistemas de identificação de pacientes; segurança do paciente

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Resumen

Marco contextual: La seguridad del paciente (SP) es un foco de debate en la Organización Mundial de la Salud. Una de las metas es identificar correctamente al paciente con el objetivo de prevenir eventos adversos relacionados con la SP.

Objetivos: Analizar los procedimientos de identificación de pacientes críticos mediante el uso de la pulsera. Caracterizar los registros realizados por los profesionales de enfermería en cuanto a la localización, integridad y legibilidad.

Metodología: Estudio descriptivo, observacional, documental, cuantitativo, realizado en una Unidad de Terapia Intensiva (UTI) en Brasil. Los datos se recogieron a través de una lista de comprobación con preguntas objetivas relacionadas con el uso de la pulsera por el paciente y con los registros de enfermería. Para el análisis se utilizó la estadística simple. Estudio aprobado por la Comisión de Ética en Investigación del Hospital Universitario Pedro Ernesto, CAAE: 1.517.652.

Resultados: En el 96 % de las observaciones los pacientes estaban con la pulsera de identificación, y en el 75 % de los prontuarios había anotaciones sobre la presencia de la pulsera.

Conclusión: La adhesión al uso de la pulsera es relevante en la UTI. Se necesita que el equipo esté capacitado en relación a la necesidad de registros médicos de pacientes.

Palabras clave: enfermería; sistemas de identificación de pacientes; la seguridad del paciente

Received for publication: 22.12.16

Accepted for publication: 23.03.17

Introduction

There is increasing evidence about the importance of a correct patient identification to minimize errors and adverse events resulting from care delivery. This trend has been rising since the 2000s when the Institute of Medicine Committee on Quality of Health Care in America published the report *To Err is Human: Building a safer health system*. This study was conducted based on an analysis of the American health system which revealed a high number of hospital inpatient deaths due to preventable errors (Souza & Silva, 2014; Tase, Lourenção, Bianchini, & Troughin, 2013).

The publication of this report was followed by several debates on this issue among several health institutions. In 2004, the World Health Organization launched the World Alliance for Patient Safety with the purpose of disseminating and accelerating improvements in patient safety worldwide. The definition of international patient safety goals aimed at correctly identifying patients was a milestone (Souza & Silva, 2014; Tase et al., 2013; Zambon, 2014).

In Brazil, the creation of the National Patient Safety Program (*Programa Nacional de Segurança do Paciente - PNSP*) brought forth the discussion on patient safety, thus contributing to the improvement of healthcare (Portaria n.º 529/13 de 1 de Abril). The correct patient identification is an integral part of the healthcare safety measures, by increasing the professional's trust in care delivery and ensuring the quality of care (Agência Nacional de Vigilância Sanitária, 2013a; Fassarella, Bueno, & Souza, 2013). Several studies demonstrate the correlation between safety issues in the process of patient identification and the occurrence of errors and adverse events. The Iberoamerican Study of Adverse Events, which was conducted in five Latin-American countries between 2007 and 2009, associated patient safety with care delivery and reported that 10.5% of inpatients experienced adverse events, of which 58.9% were preventable events (Agência Nacional de Vigilância Sanitária, 2013a; Beccaria, Pereira, Contrin, Lobo, & Trajano, 2009).

Studies show that patients in intensive care units (ICUs) are more vulnerable to adverse events. Data from the Harvard Medical School, in Boston, reveal that more than 20% of the patients admitted to ICUs had at least one adverse event (Agência Nacional de Vigilância Sanitária, 2013a; Beccaria et al., 2009).

A study conducted in Brazil on the use of the identification wristband showed that 75.9% of the hospitals use identifiers in bed and that only 23.8% of the patients use wristbands (Agência Nacional de Vigilância Sanitária, 2013a).

The standardization of the wristband is very important to regulate its use and contribute to a reduction in the number of adverse events. For this reason, it is imperative to create protocols and develop education and awareness initiatives among professionals to increase the adherence to wristbands. Furthermore, wristbands should be checked before every procedure, regardless of the patients' length of hospital stay and clinical condition (Portaria n.º 529/13 de 1 de abril; Agência Nacional de Vigilância Sanitária, 2013b).

Therefore, the correct patient identification aims at accurately identifying the individual who will undergo a specific service, treatment, or procedure and ensure that this intervention is indeed the one that the patient needs so as to prevent errors, mistakes, and adverse events (Hoffmeister, 2012; Neves & Tavares, 2011; Souza & Silva, 2014).

Thus, this study aimed to analyze the procedures of identification of critically-ill patients using a wristband, as well as to characterize the information recorded by nursing professionals about wristband placement, integrity, and readability at an adult general ICU of a university hospital in Rio de Janeiro, Brazil.

Background

The healthcare delivery process is characterized by multiple activities towards individuals, families, or communities with the purpose of maintaining or promoting their physical, psychological, and social well-being.

ing. Care quality should be the priority for care delivery, as well as the safety of patients and everyone involved in the caring process (Agência Nacional de Vigilância Sanitária, 2013b; Portaria n.º 529/13 de 1 de abril). Quality is defined as “the degree to which health services oriented for individual patients or populations increase the likelihood of achieving the desired outcomes and are consistent with the current professional knowledge” (Agência Nacional de Vigilância Sanitária, 2013a, p. 20).

Safety is one of the dimensions of quality because an unsafe care delivery increases the possibility of an outcome that has undesirable effects on the patient. According to the World Health Organization, patient safety is the reduction of risk of unnecessary healthcare-associated harm, real or potential, to an acceptable minimum given the available resources and assistance provided (Agência Nacional de Vigilância Sanitária, 2013b; Portaria n.º 529/13 de 1 de abril; Souza & Silva, 2014).

Thus, patient safety comprises a strategy for the prevention and reduction of errors and adverse events. Adverse events are incidents that result in harm to the patient (Fassarella et al., 2013; Portaria n.º 529/13 de 1 de abril).

The main measures for the implementation of patient identification are: to emphasize the multidisciplinary team professionals' responsibility for checking patients' identification prior to care delivery; to identify patients using at least two identifiers; to implement protocols for identifying patients with the same name, who are in a coma or confused; and to encourage patients to participate in all stages of the process (Hoffmeister, 2012; Neves, & Tavares, 2011; Tase et al., 2013; Souza & Silva, 2014).

The administration of medication, blood and blood products, blood and sample collection for clinical and x-ray examinations, and surgical procedures are some of the care processes that are most susceptible to errors related to the inadequate patient identification. Both the lack of identification and the incorrect identification expose patients to risks that can lead to irreversible damage and even death (Neves & Tavares, 2011).

A study conducted in a hospital in the northern region of Brazil revealed that 61.2% of the medication doses administered had no patient identification (Agência Nacional de Vigilância Sanitária, 2013a).

Research questions

What is the process of identifying critically ill patients using a wristband?

What is the quality of the identification wristbands in terms of descriptors and physical conditions?

Do nursing professionals pay attention to the records relating to the identification wristband?

Methodology

A descriptive, observational, and documentary study with a quantitative approach was conducted in an ICU of a university hospital in Rio de Janeiro, Brazil. The unit has 10 beds and the staff is composed of a multidisciplinary team that includes physicians, nurses, nursing technicians, and physical therapists. In addition to these professionals, nutritionists, speech therapists, psychologists, and social workers also provide care to patients and their families. These teams are particularly characterized by the presence of hospital nurses and students who contribute to the daily work. The study was approved by the Research Ethics Committee of the University Hospital Pedro Ernesto, CAAE: 1.517.652. Data were collected between June and August 2016, with visits at different times of the day shift, five times per week from Monday to Friday, using a non-participant observation checklist with objective questions related to the use of wristbands and the nursing records in the patients' clinical files.

The research sample consisted of critically-ill patients with and without an identification wristband. The observation also included the information regarding the use of wristbands in patients who had been admitted to the ICU for a period of more than 6 hours and the information recorded by medium

and high-level nursing professionals working at the unit during data collection. The wristbands of patients who were not at the unit for any reason during data collection (e.g., procedures or examinations) and the information recorded by nursing students were excluded from the analysis. Simple statistics was used for data analysis.

Results

The results will be presented in two sections: the first section refers to the data obtained from the observation of the use of an identification wristband, and the second section describes the information included in the nursing records.

Data obtained from the observation of the use of an identification wristband

A total of 400 observations were made on the use of wristbands for the identification

of critically-ill patients. Patients were using the wristband in 385 (96%) of these observations. Table 1 characterizes the identification wristbands according to proper placement on the patient, use of descriptors, integrity, and readability. The wristband was not properly placed on the patient, making it difficult for the professionals to see it, in 21 (5.45%) of the observations. In these cases, the wristband was, for example, below a mechanical restraint (11 - 52.38%) or a heating bandages (three - 14.29%). Other situations related to the inadequate placement of the wristband included loose wristbands (four - 19.05%), occurrence of "tourniquet effect" (two - 9.52%), and wristband placement in the patient's bed (one - 4.76%).

With regard to integrity, the wristbands were intact in most observations (372 - 96.62%). The wristbands included institutionally defined descriptors in 344 (89.35%) of the observations, which were legible in 352 (91.43%) of the observations.

Table 1

Characterization of the identification wristbands according to placement, use of identifiers, integrity, and readability

	YES		NO	
	N	%	N	%
N = 385				
Adequate wristband placement	364	94.55	21	5.45
Use of descriptors	344	89.35	41	10.65
Wristband integrity	372	96.62	13	3.38
Readability of descriptors	352	91.43	33	8.57

Information included in the nursing records

A total of 400 records of nursing professionals were analyzed. Of these, 301 (75%) had information on the use of an identification wristband in critically-ill patients. Table 2 characterizes the information recorded by nursing professionals regarding the wristband placement,

integrity, and readability. With regard to the use of a wristband, 301 records made by nursing professionals were identified in the patients' clinical files. Of these, 98 (32.56%) records were related to the wristband placement in the patient; 99 (32.89%) had information about the readability and integrity of the patient's identification wristband.

Table 2

Characterization of the information recorded by nursing professionals regarding the wristband placement, integrity, and readability

N = 301	YES		NO	
	N	%	N	%
Placement	98	32.56	203	67.44
Integrity	99	32.89	202	67.11
Readability	99	32.89	202	67.11

Discussion

The results show that, during the data collection period, 96% of the patients in the unit under analysis used wristbands; however, the vast majority of the wristbands was incorrectly placed. In Brazil, the Patient Identification Protocol emphasizes the adherence to the use of a wristband as a strategy for patient identification (Agência Nacional de Vigilância Sanitária, 2013b). The use of this safety instrument is indicated for the entire period of patient hospitalization at the healthcare unit with the purpose of reducing incidents.

Another fact that stands out is the placement of identification wristbands underneath mechanical restraints or heating blankets covering the patient's upper limbs during hospitalization. These conditions make it difficult for nursing professionals to see the wristbands before care delivery (e.g., medication administration, enteral and parenteral nutrition, invasive procedures, and infusion of blood products). The National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária, 2013b) and the Brazilian Network for Nursing and Patient Safety, Campus Rio Grande do Sul (Rede Brasileira de Enfermagem e Segurança do Paciente, Polo Rio Grande do Sul, 2013) recommend that the wristband should be checked prior to patient care delivery and/or the performance of any procedures on the patient. Therefore, the impossibility of seeing the wristband can expose the patient to the risk of receiving treatment or care intended for another patient, thus increasing the risk of errors and iatrogeneses. In

patients with altered state of consciousness, if a mechanical restraint is used, the professional should place the wristband in another limb as soon as possible, leaving it visible and accessible, and indicate its placement for healthcare professionals. This also applies to patients who are using limb heating materials due to their clinical status or as a result of the pharmacological action of the drug therapy in use. In addition, it should be noted that leaving the wristband loose may allow the patient to remove it intentionally or unintentionally. Since the process of fluid retention and edema formation also exposes patients to risks due to their clinical status and the treatment used, the healthcare team should perform routine inspections to avoid the occurrence of a "tourniquet effect" in the limb. In critically-ill patients, this is a particularly important nursing care intervention, which is included in the patient safety instructions of the Regional Council of Nursing of the State of São Paulo (*Conselho Regional de Enfermagem do Estado de São Paulo - COREN/SP*). The daily assessment of skin integrity of the limb where the wristband is placed is recommended (Conselho Regional de Enfermagem do Estado de São Paulo, Rede Brasileira de Enfermagem e Segurança do Paciente, Polo São Paulo, 2010).

As alternatives to wristbands, the Brazilian Network for Nursing and Patient Safety Campus Rio Grande do Sul suggests the use of other means of patient identification, such as labels, identification sheet at bedside, bed chart including identification data, and risk identification cards, to reduce risks and ad-

verse events (Rede Brasileira de Enfermagem e Segurança do Paciente, Polo Rio Grande do Sul, 2013).

With regard to the descriptors, the National Program for Patient Safety (Ministério da Saúde, 2014) recommends the use of at least two of the following descriptors: full name, full mother's name, date of birth, and/or number of clinical file. The analyzed wristbands met the specifications defined by the institution where the study was conducted and 344 (89.35%) of the wristbands included all descriptors. The material of the wristband should be flexible, resistant to wear during hospital stay, hypoallergenic, white, adequate sized to contain information without abbreviations, and easy to read; it should also include handwritten or printed data (Ministério da Saúde, 2014).

The recommendations also emphasize the quality of the printed data in the identification wristband. Tase et al. (2013) point to the need for the data printed in the identification wristband to be resistant to hygiene care, body fluids, soap, and alcoholic solutions.

With regard to the information on the use of the wristband recorded in the patients' clinical files, this study revealed that most nursing professionals do not make any notes regarding the wristband placement (67.44%), integrity (67.11%), and readability (67.11%), neglecting an integral part of the identification process. The guidelines on patient safety issued by the Regional Council of Nursing of the State of São Paulo and the Brazilian Network for Nursing and Patient Safety Campus São Paulo recommend the need for routine verification of the use of wristbands and the information included in them (Conselho Regional de Enfermagem do Estado de São Paulo, Rede Brasileira de Enfermagem e Segurança do Paciente, Polo São Paulo, 2010). Therefore, healthcare professionals should inspect the information area of the identification wristband on a daily basis and register its use and placement in the clinical files, as well as the readability of its descriptors.

The National Program for Patient Safety (Ministério da Saúde, 2014) defines that the commitment to the process of patient identification and maintenance of the wristbands is a responsibility of the whole multidisciplinary

team. The document also mentions that, in case the registration data are erased and/or the wristband is removed, the healthcare team must request its replacement in writing to the patient admission and discharge sector, indicating the reason for replacement, the patient's name, and file number, and return the damaged wristband, when possible.

Some limitations of this study should be mentioned, namely the reduction in the number of beds in the unit under analysis and in the number of hospitalizations as a result of the hospital's financial difficulties. Another limitation related to the low number of professionals at the hospital due to administrative staff strikes.

Despite these limitations, the study allowed increasing the knowledge about patient safety regarding the correct identification using a wristband. Significant issues were observed in its use at the ICU, which demonstrates that the teams working in the unit under analysis must continue to practice. Another important aspect for reflection is the lack of information about the characteristics of the wristbands recorded in patients' clinical files, thus undermining and exposing both the teams and the patients to unnecessary risks.

Conclusion

It was possible to conclude that the identification wristband is a strategy widely used by ICU professionals with a view to increasing safety and that almost all patients admitted to the ICU use it. The identification wristband is an instrument that enables a professional practice focused on patient safety, leading to the improvement of nursing care and assistance.

The objectives of the study were met and there were no limitations concerning the applicability of the data collection instrument. The hospital under analysis follows the PNSP guidelines, where the Center for Patient Safety (*Núcleo de Segurança do Paciente* – NSP) is the agency responsible for setting up and monitoring patient safety measures. In addition, it meets all the institutional requirements for the use of wristband descriptors, material, and handling.

Professionals must be constantly aware of the need for nursing records about identification wristbands; given the low number of notes found in the patients' files, they must be encouraged to record this information. Despite the professionals' strong adherence to the use of a wristband, too much information is lost due to inadequate or missing information.

These records should include information on the use and condition of the wristband and, especially, its replacement, or placement of a new one. The study revealed that nursing residents at the unit are the most active ones in the patient identification process since they are going through a training process. Thus, an investment should be made in training and update strategies aimed at the nursing team about the importance of the patient safety priority and the processes inherent to the correct patient identification. Most of the studies published on the topic of patient identification using the identification wristband seek to demonstrate the occurrence of adverse events or errors in care delivery and the professionals' adherence to this strategy, within a general perspective of patient safety. The use and quality of patient identification wristbands and the associated nursing records are topics that remain understudied.

Another fact that reinforces the importance of this study is that, during the data collection period, one patient's identification wristband contained information regarding another patient, thus exposing him/her to several risks. This occurrence served as a wake-up call and becomes more relevant because the hospital integrates a sentinel network in Brazil, where all occurrences should be notified and referred for assessment.

Therefore, we expect that, based on the results obtained in this study, more attention will be given to the processes of patient safety, namely the correct identification of patients admitted to ICUs.

Further studies should be conducted to assess professionals' adherence to the verification of the identification wristbands prior to the performance of any procedure on the patient.

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