



Wearing identification wristbands: implications for newborn safety in maternity hospitals

Uso de pulseiras de identificação: implicações para a segurança do recém-nascido na maternidade

Uso de pulseras de identificación: implicaciones para la seguridad del recién nacido en la maternidad

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ABSTRACT

Objective: to analyze the wearing of identification wristbands in newborns admitted in a public maternity hospital, regarding patient safety. **Method:** descriptive study, of the survey type, carried out in a reference public maternity hospital, through observations and interviews. Two hundred and sixty newborns were included. **Results:** 15.4% of the newborns had no identification wristbands, and 18% of the wristbands had data that did not match with the medical records. 90.9% of the wristbands were easily accessible for checking; however, in 80.9% of the cases, the wristband was not checked before the nursing procedures, and the mother or caregiver was not instructed on wearing the wristband in 76.8% of respondents. **Conclusion and implications for practice:** there should be training of the nursing team and other health professionals on the placement and daily checking of wristbands, considering international protocols and recommendations regarding patient safety.

Keywords: Patient Identification Systems; Quality of Health Care; Patient Safety; Nursing Care; Neonatology.

RESUMO

Objetivo: analisar o uso de pulseiras de identificação em recém-nascidos internados em uma maternidade pública com relação à segurança do paciente. **Método:** estudo descritivo, do tipo *survey*, realizado em uma maternidade pública de referência, por meio de observações e entrevistas. Incluíram-se 260 recém-nascidos. **Resultados:** evidenciou-se que 15,4% dos recém-nascidos estavam sem pulseiras de identificação e 18% das pulseiras tinham dados que não conferiam com os do prontuário. Verificou-se que 90,9% das pulseiras estavam de fácil acesso para checagem, porém, em 80,9% dos casos, a pulseira não foi checada antes dos procedimentos de enfermagem, e a mãe ou o responsável não foi orientado sobre uso da pulseira em 76,8% dos entrevistados. **Conclusão e implicações para a prática:** a equipe de enfermagem e os demais profissionais de saúde devem ser capacitados institucionalmente quanto à colocação e checagem diária das pulseiras, levando em consideração os protocolos e as recomendações internacionais a respeito da segurança do paciente.

Palavras-chave: Sistemas de Identificação de Pacientes; Qualidade da Assistência à Saúde; Segurança do Paciente; Cuidados de Enfermagem; Neonatologia.

RESUMEN

Objetivo: analizar el uso de las pulseras de identificación en recién nacidos internados en una maternidad pública con relación a la seguridad del paciente. **Método:** estudio descriptivo, del tipo *survey*, realizado en una maternidad pública de referencia, por medio de observaciones y entrevistas. Se incluyeron 260 recién nacidos. **Resultados:** se evidenció que el 15,4% de los recién nacidos estaban sin pulseras de identificación y el 18% de las pulseras tenían datos que no conferían con los del prontuario. Se verificó que el 90,9% de las pulseras estaban de fácil acceso para chequeo, pero en el 80,9% de los casos, la pulsera no fue chequeada antes de los procedimientos de enfermería, y la madre o responsable no fueron orientados acerca del uso de la pulsera en el 76,8% de los entrevistados. **Conclusión e implicaciones para la práctica:** el equipo de enfermería y los demás profesionales de la Salud deben ser capacitados institucionalmente en cuanto a la colocación y chequeo diario de las pulseras, teniendo en cuenta los protocolos y las recomendaciones internacionales respecto a la seguridad del paciente.

Palabras clave: Auditoría de Enfermería; Calidad de la Atención de Salud; Seguridad del Paciente; Atención de Enfermería; Neonatología.

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INTRODUCTION

Within the policies to improve health care safety, the World Health Organization prioritizes the proper identification of patients with strategies that advise health care facilities to implement systems. These interventions must increase the responsibility of professionals in the field when identifying patients, using at least two identifiers, besides standardizing processes to identify patients in the health care system. Thus, the Joint Commission International (JCI) and the WHO require compliance with international patient safety aims, the first of which is to identify the patient in order to prevent failures.^{1,2}

In Brazil, in April 2013, the creation of the *Programa Nacional de Segurança do Paciente* (PNSP - Brazilian Patient Safety Program) brought to the forefront the discussion on patient safety in Brazil, contributing to the qualification of health care (Ordinance 529/13 of April 1st). The patient identification protocol establishes that the correct information of the patient is a full part of the health care security measures, allowing the health professional to have greater confidence in the moment of performing care, ensuring its quality. Professionals must monitor patients regarding wearing identification wristbands.³

Due to national and international patient safety policies and programs in recent years, the use of identification wristbands since birth, the policy of not separating mothers and newborns during hospitalization and assigning a health record to all newborns (NB) resulted in a significant improvement for the identification of the NB. Despite this progress, there are still failures to be rectified in the system that can cause injuries to the NB.⁴

This discussion is exacerbated in the case of NB hospitalized in the maternity hospital since they are exposed to numerous adverse events due to the occurrence of errors in the patient identification process. Frequently, the Brazilian and the international press report cases of babies exchanged in hospitals, which severely affects psychosocial aspects of the families involved. There are also reports regarding the exchange of medications and procedures performed wrongly in other patients, commonly by identification mistakes.⁵

These diseases can be prevented, according to WHO, by accurately investigating errors related to patient identification and implementing effective interventions for its control and prevention.⁶ This prevention is the responsibility of the professionals who work in the maternity hospitals, through an adequate identification system for the NB that addresses the following aspects: identification (1) at birth, (2) in the delivery room or in the operating room, (3) before any possible separation of mother and child; and the non-interference with the establishment of the mother-child bond prior to the identification and checking of the information, in addition to the conditions of the mother's and newborn's wristband at birth, throughout the hospitalization period and at discharge.⁴

Studies aiming to investigate the matter in question are incipient, and the publication of this research is relevant for the scientific society and the workers in the Health field. It is hoped that the results of this study will be transformed into effective

actions directed by accurate information in the maternity. Based on the above, this study aimed to analyze the wearing of identification wristbands in NB admitted in a public maternity hospital, regarding patient safety.

METHOD

This is a descriptive, survey-type study carried out in a reference maternity hospital, in the city of Teresina, Piauí State. A mean of 799 live births per month was obtained between January and August 2016. Based on this data, we chose the simple random sample method in order to obtain the sample. Thus, we obtained a sample of 260 NB by applying the 95% confidence level and the 5% sample error.

Data were collected between March and August of 2017, through interviews with parents or caregivers, along with the observation of the NB. The invitations to participate in the study were made by the researchers in the Obstetrics Clinic Wards, in the Neonatal Clinic and *Unidade de Cuidado Intermediário Neonatal Canguru* (UCINCa - Brazilian Kangaroo Neonatal Intermediate Care Unit) and in the beds of the *Unidade de Cuidado Intermediário Neonatal Convencional* (UCINCo - Brazilian Conventional Neonatal Intermediate Care Unit), and in the Neonatal Intensive Care Unit (NICU). At the same time, researchers explained to parents or caregivers the objectives of this study, how data collection would occur and requested the signing of the Informed Consent Form.

After this step, NB were observed regarding the identification wristbands (according to the items described in the "checklist") and, simultaneously, the interviews with parents or caregivers were carried out. There is a morning routine conducted to check wristbands and data recording was used in 3 shifts: in the morning, afternoon and evening. This procedure matches information collected and the real situation. 260 NB were observed only once and 247 parents or caregivers who were with the newborn at the time of collection were interviewed. The number of parents differs from the NB because there were 13 twins. Parents and/or caregivers who were with the NB at the moment of the collection were adopted as inclusion criteria. There was no exclusion criterion for parents or caregivers.

The criteria for inclusion of the NB were: be hospitalized in the sectors of Obstetric Clinic, Neonatal Clinic and UCINCa and in the beds of the UCINCo and NICU. The adopted exclusion criterion was: being a pathology that would prevent wearing identification wristbands, such as skin diseases which would be aggravated by wearing the wristband. No NB were excluded from this study.

The data collection was performed through a checklist form developed by the researchers themselves, which included items that addressed sociodemographic data, the wearing of wristbands, place where to wear the wristband, wristband conditions, readability of wristbands, accuracy of the data contained in the wristband (comparison of the data with those of the medical record), access for checking the wristband's data, if the check is made by the professional before the care or procedures, in-

dication of twins on the wristband and information for parents or caregivers for NB wearing the wristband.

Readability was assessed through the criteria described in the institutional protocol, which states that printed wristbands with erased data and handwritten wristbands with unintelligible data were considered unreadable. As for the access to check data on wristbands, the researcher identified if they were exposed, making daily checking easier. When placing the wristbands, according to the institution's protocol, parents or caregivers should be informed about the importance of putting them on their newborns or, if it is the case, about the reasons for not putting them on.

The checklist was prepared following the patient identification protocol used by the institution. In this document, the following items are recommended as identifiers in the NB wristbands: NB of (full mother's name), date of birth of the mother, NB's chart number, date of birth of NB, time and gender. In multiple births, the birth order shall be specified on the wristband as follows: 1st, 2nd twin, and sequentially, preferably printed. When handwritten, the wristband should be readable (block letter), with an appropriate size and paintbrush for an overhead projector with black ink must be used.

According to the protocol, the identification of the institution's newborn should follow the following steps: identification of the newborn at the time of birth at the obstetric center, surgical center or normal delivery center and admission (following the criteria established by the identifiers beforehand mentioned, with placement of the wristband on the right ankle of NB). There should be a check of the wristband before the procedures, care, transfers and delivery of the NB to the relative, in addition to the daily evaluation of the wristband conditions. The nurse technician responsible for the NB must request them in the places of preparation if there is a need to change the wristband. The NB should receive the new wristband on the same limb or, if necessary, on the left ankle, or left or right wrist. In cases of external transfer, the NB should remain with the wristband. In case of death, the NB continues with the wristband until release for the family. At discharge, the NB's wristband must be removed after the conference with the mother's wristband.

It is noteworthy that the *Núcleo de Segurança dos Pacientes* (Patients Safety Center) trained and qualified all professionals of the multi-professional team before the implementation of the protocol since they are responsible for checking the wristband daily.

The results from the questionnaire were transcribed with the second typing process, using spreadsheets from the Microsoft Excel. Once the errors were corrected, the data were exported and analyzed by the Statistical Package for Social Science, version 20.0. The descriptive statistical analysis was performed by using data such as absolute frequencies and percentages, mean and Standard Deviation, according to the analysis of the data produced.

This study was carried out based on Resolution 466/12 of the Brazilian National Health Council (*Conselho Nacional de Saúde*) and obtained Opinion 1,848,122 by the Research Ethics Committee of the *Universidade Federal do Piauí*. The maternity

hospital from the study authorized the research, and the participants signed the Free and Informed Consent Form.

RESULTS

Two hundred and sixty hospitalized NB wristbands were analyzed. The percentages of female and male NB are similar, but the number of males was slightly higher. Of the total studied, 51.5% of the NB were male, 48.1% of the female and 0.4% of the NB were undefined because they had ambiguous genitalia.

Among hospitalized NB, 43.8% were preterm, 53.4% at term, 1.1% post-term, and in 1.5% there were no records of gestational age in the medical records and did not present the prenatal card at the collection time. Table 1 shows the mean for age and gestational age of the participants.

Table 1. Sociodemographic characterization of NB admitted to a reference maternity hospital, regarding gestational age at birth and age at the day of collection. Teresina, PI, Brazil, 2017

Variable	Mean	Minimum	Maximum	Standard Deviation
Gestational age (weeks)	36.2	25.0	42.0	3.8
Age (days of life)	15.0	0	172.0	24.1

There was no conference of the data of the wristbands with the medical records in NB that were not wearing the identification wristband in 40 evaluations (15.4%). The quantification of the uncontrolled data was categorized as "Not applicable" in Table 2.

The study revealed that 15.4% of NB did not wear the wristband (Table 2). Among the reasons for not wearing the wristband, it was found: loose wristband (67.5%); withdrawn because they were tight (5%); were withdrawn for procedures (7.5%); NB lost when transferred from one sector to another (5%); fixed in the incubator without reasons that prevented NB from using them (5%); the mothers stated that NB never wore wristbands and did not know why they did not wear (7.5%); NB received medical discharge but not hospital discharge. This happened because the mother was still hospitalized. However, the wristband of the newborn was removed.

Of the 47 wristbands (18.1%) with data nonconformity with that of the medical record (Table 2), we found the wrong time in 16.2%, wrong gender in 1.5%; and wrong time and date of birth by 0.4%.

According to Table 3, in most cases, the data on the wristbands were readable (90.4%), with present birth date (99.1%), time of birth (91.3%), and gender (98.6%). Also, the wristbands were in a position of easy accessibility (90.9%), were not checked before the nursing procedures (80.9%), and the mother or the guardian were not advised to wear the wristband (76.8%).

Besides, it was found that, in general, the mother's full name

Table 2. Verification of the wearing of wristbands and compliance of data of identification wristbands of NB in a public maternity hospital. Teresina, PI, Brazil, 2017

Variable	n (%)
The NB wore the wristband	
Yes	220 (84.6)
No	40 (15.4)
The data of the wristbands checked with the data of the medical	
Yes	173 (66.5)
No	47 (18.1)
Not alicable*	40 (15.4)

* It refers to NB who were not wearing identification wristbands.

Table 3. Characterization of wristbands and data found on identification wristbands of NB hospitalized in a public maternity hospital. Teresina, PI, Brazil, 2017

Variable	n (%)
Readable data	
Yes	199 (90.4)
No	21 (9.5)
Birth date resent	
Sim	218 (99.1)
No	2 (0.9)
Birth time resent	
Yes	201 (91.3)
No	19 (8.6)
Gender resent	
Yes	217 (98.6)
No	3 (1.3)
Easy-to-access ositioned wristband	
Yes	200 (90.9)
No	20 (9.1)
Wristband was checked before nursing rocedures	
Yes	82 (37.2)
No	178 (80.9)
Mother or guardian about wearing the wristband	
Yes	91 (41.3)
No	169 (76.8)

* total n equal to 220, because 40 NB were not wearing identification wristband;

** n for twins equal to 13.

(74.1%), and the patient's name (92.2%) were present.

DISCUSSION

This study presents with relevant results considering the present scenario of the maternity hospital. In fact, a protocol for patient identification was launched in 2016 in this institution, with the following goals: 1) to ensure the correct identification of patients and reduce incidents related to misidentification; 2) to make sure that care is given to those who need it; and 3) to achieve the international goal of safety, with the correct identification of patients.

In related literature, results found that the use of wristbands was largely variable. The rate of NB who were not identified with wristbands was 15.4%, higher than those found in a study performed with 385 patients hospitalized in clinical, surgical, maternal-infant and pediatric units at a university hospital in Porto Alegre City, representing 4.2% of patients.⁷ There was also another study conducted in an obstetric clinic and obstetric center of a university hospital in São Paulo City, which assessed 800 opportunities (400 women and 400 NB) and showed 2.3% of patients with no wristbands for identification.⁸

A study performed at a neonatal unit of a university hospital in Rio de Janeiro City analyzed 200 NB identification wristbands and found that 25.5% of NB were not wearing them.⁵ This result was already higher than the results found in this study. In Brazil, it is perceived that health professionals still fail to guarantee the goal of 100% identification of NB, although the institutional protocol describes steps that guide these professionals to identify all patients at the time of birth or hospitalization.

It is possible to find in the literature some special cases that justify the non-wearing of wristbands, being: NB with gestational age ≤ 37 weeks or neonates with upper or lower limb edema, malformation syndromes or allergy to the wristband material.⁵ However, the institutional protocol did not join these recommendations, and in all cases, it is necessary to identify NB in another member (in cases of pathologies) or to execute wristband adjustment (in preterm/low birth weight NB).

Loose wristbands were listed as the most frequent reason for the absence of wristbands. This finding can be partially understood by the fact that 43.8% of the participants in the study were premature, which required wearing appropriate wristbands and/or correct fixation techniques. When this is the case, the institutional protocol defines the need for changing wristbands. Practical nurses responsible for NB are those who should change loose wristbands for new ones in confection units.

Given this, it is important to review the work processes, carry out continuous training with health professionals regarding the correct brace fixing technique, especially in premature NB, and reassess the input management system, seeking to acquire wristbands appropriate for these patients.⁹

The general nonconformity index for wristband wearing

was 18.1%. This index is higher than that found in other studies, which presented nonconformities of 11.9%⁷ and 17.8%.¹⁰ Also, we observed, in this study, inattentiveness of professionals regarding the accurate completion of the time of birth of NB, care that should be doubled in the cases of twins.

As a comprehensive part of health information systems, nursing records must be reliable and complete in a way that ensure the continuity of care with safety. Nursing records should allow the formulation of actions to prevent injuries to the health of the individuals involved and interventions based on the patient's real needs and demands.¹¹⁻¹²

The error rate of patient identification is well above the ideal, indicating failures in the work processes of health professionals, which can directly affect the quality of care provided. The failures in the identification process are one of the most frequent errors in nursing care.¹³ The study found that of the initiatives carried out for patient safety, the least observed was the identification.¹⁴

Regarding the unreadability of the data, an index of 8.1% was found. In this regard, consideration should be given to the material used on the label for making the wristband or printing ink. This task demands the engagement of those responsible for managing the institution's material and of nurses, in order to define and use proper materials. It is a fact that wristbands may be dirty due to the action of time, its use, exposure to water and other antiseptic products.¹⁰ These are recommendations from the protocol of patient's safety used by the institution where research was conducted.

The identification of patients in the institution was not wholly used as a safety measure for NB. In 80.9% of the cases, the wristband was not checked before procedures, despite the implementation of the institutional protocol, which indicates the wristband conference before the procedures, care, transfers and delivery of NB to the family member, besides daily evaluation of the conditions of the wristband. Similar data were found in the literature, that in 89.3% of the observations, the wristband was not checked before delivery of NB to the relative, and there was no check before performing procedures in 88.3%.⁵

Most of the wristbands were easily accessible for conferencing, and yet it was not performed. In addition to leaving the NB at risk and in high vulnerability, nursing care was neglected, since the conference should be performed in all contacts with the patients.

In addition to being simple, identification through wristbands is a practical, financially accessible method that can prevent serious failures/adverse events in the provision of nursing care.⁵ A study carried out in a Brazilian NICU revealed that adverse events occur in 84% of NB hospitalized¹⁵. Another study showed a higher occurrence related to incorrect medication dosage (38%), accidental loss of intravascular catheter (25%), skin lesion (21%) and healthcare-related infection (20%).¹⁶

Also, only 35.0% of the parents or caregivers were informed about the importance of using the identification wristband. It is important to mention that family members should be participants in care, contributing to the safety of neonatal care.¹⁷ The institutional protocol is a proposed intervention for health professionals to

instruct patients, caregivers, family members or caregivers about wearing identification wristbands.

A cross-sectional study carried out in a teaching hospital in Turkey corroborated the results of this study, as it revealed that more than a third of the participants said they were never informed about wearing identification wristbands. One of the reasons that may lead patients not to wear wristbands may be the lack of knowledge about their importance for patient safety, so all patients or companions admitted to the hospital should be informed about the importance of wearing identification wristbands. Some procedures may require the removal of wristbands, but they should be replaced at the end of each procedure. Besides, if the wristband is damaged, lost or unreadable, it should be replaced with a new one as soon as possible. Caring for wristbands becomes more necessary for elderly, children or unconscious patients. The use of materials that do not cause allergic reactions can increase the wearing rate of wristbands.¹⁸

From the foregoing, it is necessary to develop educational support strategies and follow-up management actions to support safe and evidence-based practices. To achieve these goals, teamwork among professionals and managers is essential, since the uncritical use of scientific knowledge or partial implementation of protocols in health institutions, without articulation with professionals, results in unsuccessful safety and quality desired, and may incur risks to the patients' health and the credibility of the institution.¹⁹

CONCLUSION AND IMPLICATIONS FOR THE PRACTICE

The findings pointed to failures related to the process of identification of NB, especially regarding wearing wristbands and data accuracy. Such reality put NB in risk situations, which cause severe consequences that could be prevented. It all affects health care quality and the safety of NB. The recognition of such flaws found in the study should be transformed into effective actions of the health services, these actions should be focused on health professionals.

In this sense, the nursing team and other health professionals should be institutionally trained in the placement and daily checking of wristbands, considering international protocols and recommendations regarding patient safety.

Thus, there is an urgent need to foster safety culture in hospital institutions, involving all the health team that works with the NB and aims to prevent adverse events. The better the stages of this process are defined, and the more professionals are oriented about the identification of the newborn, the better and safer the health care will be.

This study has limitations due to the outlining of the chosen study (descriptive), the absence of inferential tests between the variables and the generalization of the findings. Considering the study was conducted in only one city, there is no guarantee the results would be similar in other regions of Brazil. Furthermore, research did not reveal which barriers found by professionals

may contribute to non-compliance with the correct identification of patients. The accomplishment of qualitative research that elucidate these difficulties is encouraged, in the face of this reality.

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