

Patient identification systems in obstetric units, and wristband conformity

Sistemas de identificação de pacientes em unidades obstétricas e a conformidade das pulseiras

Terezinha Hideco Tase¹

Daisy Maria Rizatto Tronchin²

Keywords

Maternal-child nursing; Nursing administration research; Nursing assessment; Patient safety; Patient identification systems

Descritores

Enfermagem materno-infantil; Pesquisa em administração de enfermagem; Avaliação em enfermagem; Segurança do paciente; Sistemas de identificação de pacientes

Submitted

March 26, 2015

Accepted

April 28, 2015

Corresponding author

Terezinha Hideco Tase
Dr. Enéas de Carvalho Aguiar Avenue,
255, São Paulo, SP, Brazil. Zip Code:
05403-000
terezinha.tase@hc.fm.usp.br

DOI

<http://dx.doi.org/10.1590/1982-0194201500063>

Abstract

Objective: To evaluate the conformity of wristband identification of women in the obstetrics clinic and their newborns in the delivery room.

Methods: A quantitative study with a sample of 800 opportunities, selected by probabilistic sampling. Data collection occurred using a form completed at the bedside. The chi-square test was used to compare the conformity between the units, and a 95% confidence interval was adopted.

Results: The general compliance was 58.5% in the clinic, and 22.3% in the delivery room. Regarding the three-step protocol, the higher compliance in the clinic was related to the stage of identification of components (93.4%) and the lower, to the wristband conditions (70%); in the delivery room, the highest rates were also those steps, 69% and 44.5%, respectively. When comparing the units, the clinic produced better conformity levels with a statistically significant difference.

Conclusion: The findings allowed for restructuring of the protocols and implementing them in the institution.

Resumo

Objetivo: Avaliar a conformidade das pulseiras de identificação de mulheres na clínica obstétrica e seus neonatos no centro obstétrico.

Métodos: Estudo quantitativo, com casuística de 800 oportunidades, selecionadas por amostragem probabilística. A coleta de dados ocorreu mediante formulário preenchido à beira-leito. O teste Qui-quadrado foi utilizado para comparar as conformidades entre as unidades e adotado o intervalo de confiança de 95%.

Resultados: A conformidade geral foi de 58,5% na Clínica e 22,3% no Centro Obstétrico. Quanto às três etapas do protocolo, a maior conformidade na Clínica correspondeu à etapa componentes de identificação (93,4%) e a menor, às condições da pulseira (70%); no Centro Obstétrico, os maiores índices também foram nessas etapas 69% e 44,5%, respectivamente. Na comparação entre as unidades, a Clínica obteve melhores índices conformidade, diferença estatisticamente significante.

Conclusão: Os achados possibilitaram reestruturar os protocolos e implementá-los na Instituição.

¹Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.

²Escola de Enfermagem, Universidade de São Paulo, São Paulo, SP, Brazil.

Conflicts of interest: there are no conflicts of interest to declare.

Introduction

The binomial wristband identification protocol still has vulnerable points; those are related to the process itself, as well as those involving professionals who perform it, and the structural conditions. Associated with that, there are other factors involved, such as: implementation of protocols, technological apparatus, the multidisciplinary team commitment, patient displacement and specificity of the newborn, that in the case has no mechanism that may contribute to confirming the identification data.

Vulnerable points of the identification process are also checked during occasions of patient surname homonyms or those with similar hospital identification who share the same unit, room or diagnostic support services, side by side.

However, the misidentification of the patient still permeates the organizations that provide care, being portrayed by situations such as the absence of a wristband for several days or even throughout the hospitalization, presence of several wristbands designed to characterize potential hazards (falls, allergies, among others), wristbands with incorrect identifiers such as first name, surname, hospital identification number, or absence of those recommended by the institutional protocol, unreadable data, and an inadequate wristband condition mainly in terms of the inadequate size of the wristband for the user.

On the other hand, there was the absence of assessments to measure the quality of performance on the mother and child identification protocol, through wristbands aiming to detect problems involving the different institutional sectors and the proposal of corrective and preventive measures able to reduce injuries especially prolonged hospitalization, disability, the wrong infant presented to a mother, and death of newborn.

In the health context, risk and safety perceptions are complex issues because of the numerous elements in the work process, the peculiarities and characteristics of each situation, and the multifactorial nature behind the failures in the system.^(1,2)

Patient identification is an area of high priority among the many management and care processes

in health services because, when there is an error or adverse event regarding non-compliance in patient identification, in most situations, the outcomes are catastrophic. On the other hand, it is a practice that contains preventable measures when it is valued by health professionals, it needs low-cost materials, and it must be described in institutional protocols.⁽³⁾

In 2007, the *World Health Organization* (WHO), in partnership with the *Joint Commission International* (JCI), an American-based accrediting agency, released nine patient safety solutions for the prevention of errors and adverse events in health care. These solutions are defined as projects or interventions in systems that are able to prevent or attenuate harm to the patient, and include: managing the risks associated with look alike – sound alike medication names; correct patient identification; handoff communication during the transfer of responsibility for the patient; performance of the correct procedure at the correct body part; control of concentrated electrolyte solutions; ensuring the appropriateness of medication throughout the care process; avoiding catheter and tubing misconnections; needle reuse and injection device safety, and improved hand hygiene to prevent infections associated with health care.^(4,5)

In view of this reality, patient identification is considered one of the solutions, and it is an essential and critical component of safe care; if correctly performed, it is likely to prevent many errors or adverse events in different areas of practice.

In this sense, the WHO has determined measures for the unequivocal identification of the patient, such as the presence of a wristband from admission to discharge, use of the wristband to verify the patient for all health professionals before care, establishment of institutional protocols predicting exceptions such as homonyms, abbreviations or inability to use the wristband. Also highlighted is the importance of involving the patient/family in the identification process, especially during the confirmation of data, and explaining the need to maintain the wristband.⁽⁶⁾

Thus, an important international program with various operating areas was established, observing: behavioral aspects of patients and health profession-

als; taxonomy; technology; practical solutions and challenges; research; knowledge and education for safe care.⁽⁵⁾

The patient identification process using wristbands does not create too much difficulty to implement, since it is understood, valued by professionals and by patients, and incorporated into practice. These strategies are of greater value when compared to the training of professionals and to governmental and institutional recommendations.⁽⁷⁾

The objective of this study was to evaluate the wristband identification protocol of the women admitted to the Obstetric Clinic, and newborns in the delivery room, at a university hospital of São Paulo.

Methods

This was quantitative, exploratory research, using a descriptive approach, with prospective data collection, conducted in the obstetrical clinic and delivery room of a tertiary care university hospital in São Paulo, during the period between September of 2013 and March of 2014.

The sample consisted of 800 opportunities (400 women and 400 neonates), and a significance of 5%, $z = 1.96$, $p = 0.50$ $m = 5\%$ was used for calculation. The selection process was conducted as a systematic random probability sampling, based on the total number of beds in the obstetrical clinic. The exclusion criteria adopted was women admitted for an obstetric cause, whose pregnancy did not result in a live birth. For the sampling at the Obstetric Center, the day of the week and the number of delivery/day was used.

Data were collected through a form. The study variables were: presence and quantity of wristband(s); a plastic wristband and white printed or handwritten/label for a pregnant woman; and for postpartum women, two plastic bracelets, printed or handwritten on white laces, and a wristband with the sequential delivery number on the arm. The identifiers for the woman were: complete and correct first and last name, hospital registration number, and bar code. Wristband conditions were: readability of identifiers (letters of appropriate reading size, absence of flaws in print, smudges /erasures,

dirt or secretions and the material used), and conditions of wristband (free from tears, cuts, folds, or problems with the lock/adhesive, and of an appropriate size).

For newborns, variables differed for presence and quantity; four wristbands, two of white plastic - one on the right arm and the other on the right leg, and two wristbands made from laces with the sequential delivery number - one on the right arm and one on the right leg, along with the newborn identifiers: full and correct name and surname of the mother, with the acronym "NB of" ("newborn of") and "sequential number" of birth, hospital register identification, barcode, and on the wristband made of the laces, the sequential number of the delivery. With regard to the wristband conditions, the variables established earlier were added with the NB-sized wristbands.

It is emphasized that the recommended identifiers were compared to those inserted in medical records or the hospital census. In this study, conformity was defined as compliance with the requirements determined by the institutional protocol in regard to the items evaluated and to noncompliance, its opposite.

Data were organized in an electronic spreadsheet and analyzed based on descriptive and inferential statistics, using the chi-square test to compare the conformity rates with the significance level of 5% ($p < 0.005$). The adopted confidence interval was 95%.

The conformity rates established by the authors for the protocols were 90% in the general conformity and the three-step protocol: presence and quantity of wristbands, identification of required identifiers, and wristband conditions, both in the obstetrical clinic as well as in the delivery room.

The development of the study met the national and international standards of ethics in research involving human subjects.

Results

Figure 1 shows the general conformity of the identification protocol for pregnant/postpartum women admitted to the Obstetrical Clinic and newborns in the delivery room.

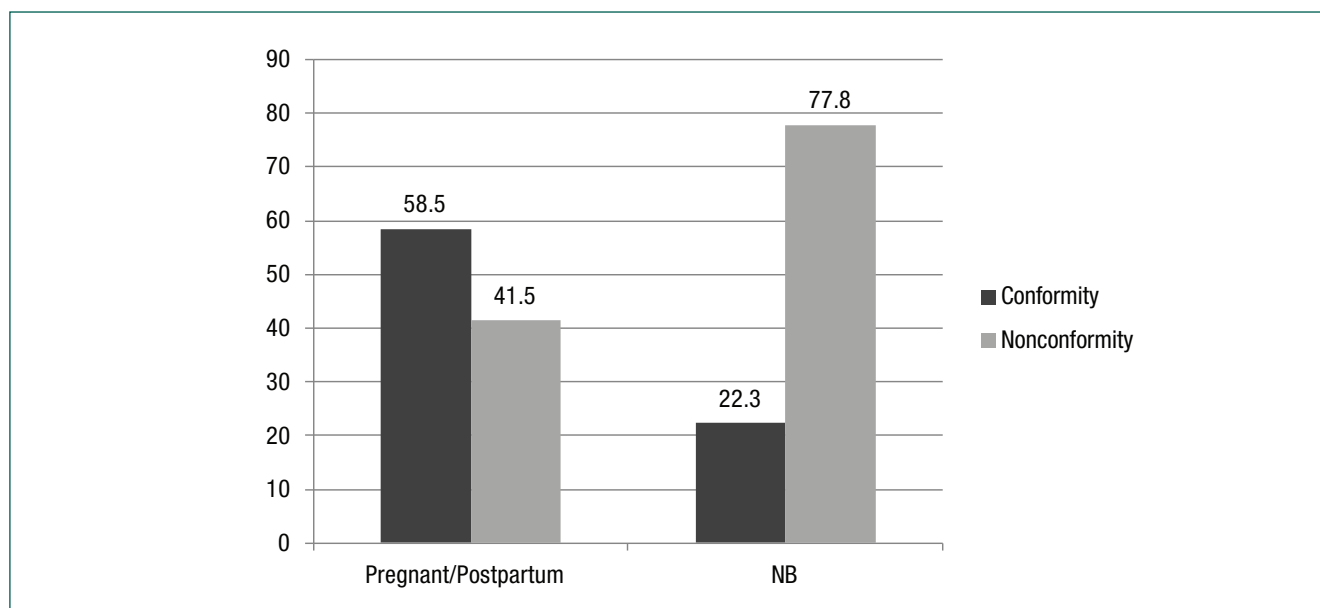


Figure 1. Distribution of general conformity and nonconformity in identification protocol for pregnant/postpartum women in the Obstetrical Clinic and NB in the delivery room

The data in figure 1 show that in the identification protocol for pregnant/postpartum women, the conformity index (58.5%) was higher than the nonconformity. However it was not a marked difference (17.0%), but indicates weakness in the identification process because of the proximity of percentages.

It appears that the conformity of the newborn identification protocol obtained the percentage of 22.3%, approximately three times lower than that of nonconformity, pointing to a higher vulnerability in the identification process as well, which may lead to aggravating elements in care, compromising the safety of the newborn.

The data in table 1 demonstrate conformity and nonconformity, according to the three steps of the identification protocol for pregnant/postpartum women in the Obstetrical Clinic, defined as follows: the presence and quantity of wristbands; required identifiers, and conditions of the wristband.

Table 1. Conformity in the three steps of evaluation of wristbands of pregnant/postpartum women

Steps	Conformity n(%)	Nonconformity n(%)	Total n(%)	CI 95%
Presence and quantity of wristbands	349(87.2)	51(12.8)	400(100)	(84.0; 90.5)
Required identifiers	355(93.4)	25(6.6)	380(100)	(90.9; 95.9)
Conditions of the wristbands *	266(70.0)	114(30.0)	380(100)	(65.4; 74.6)

*Chi-square test, $p < 0.001$; $n = 400$

The results of table 1 show that, of the three steps of the identification protocol, the highest percentage of conformity (93.4%) occurred in the second stage – required identifiers – and the lowest occurred in the third stage – conditions of the wristbands (70%), with a statistically significant difference ($p < 0.001$). These findings show that only the second step reached levels estimated by the authors of 90% conformity.

In the step, quantity of the wristbands, the percentage of nonconformity, 51 (12.8%) was due to nine (2.3%) absences of wristbands, 11 (2.7%) had wristbands present, but without any identifiers, and 31 (7.8%) did not match the condition of the mother or postpartum woman, as described in the institutional protocol. Due to the first two reasons – lack of wristband and wristband without any identifiers, the second and third stages were evaluated, considering 380 opportunities.

The data in table 2 presents conformity and nonconformity in the three steps of the NB identification protocol in the delivery room.

Table 2 shows that of the three steps of the NB identification protocol, the highest percentage of conformity (69%) was concentrated in the second step – the required identifiers – and the lowest percentage (44.5%) was found in the third – the con-

Table 2. Conformity in the three steps of evaluation of newborn wristbands

Steps	Conformity n(%)	Non conformity n(%)	Total n(%)	p-value*
Presence and quantity of wristbands	220(55)	180(45)	400(100)	
Required identifiers	276(69)	124(31)	400(100)	
Condition of the wristbands *	178(44.5)	222(55.5)	400(100)	<0.001

*Chi-square test, $p < 0.001$; $n = 400$

dition of the wristbands. At this step, the index of nonconformity, 222 (55.5%), was higher than conformity, due to the conditions of use and the size of the wristband, which was inadequate for the size of the NB. When comparing the three steps, there was a statistically significant difference, $p < 0.001$.

Discussion

The limitations of the study results are inherent to the fact that the research needed to be conducted in two units of a tertiary care hospital, which restricts its generalization.

However, the research results enabled the situational diagnosis of the institution as assessing the conformity and nonconformity of a protocol, which constitutes itself in a reference point for future research to indicate acceptable levels of nonconformity and the establishment of goals to reduce these results.

It is noteworthy that, to provide safe care, it is necessary that all patients use an identification wristband; that the information contained in the wristband is correct and legible, and the professionals who care for these patients conduct a review of the data on the wristband before providing care.

Several studies have been conducted showing the prevalence of identification wristbands, errors arising from misidentification, and the behavior of professionals in the practice of identification, however there is little research whose purpose is to assess the general conformity and specific of practices or work processes on the basis of institutional protocols.

In the report issued by the Vermont Oxford Network System, a nonconformity percentage of 11% related to NB identification was found.⁽⁸⁾

Other studies assessing conformity in wristband identification in pediatric units demonstrate error rates of 9.2%, 17% and 20.4% in identification.⁽⁹⁻¹¹⁾

Comparing the results of this study to the indexes found in the other studies; the general conformity rates were considerably lower, especially in identifying newborns at the delivery room. These results are considered worrying, in view of the importance of these care practices and the repercussions of nonconformity on the safety and health of patients.

Thus, there is a need for a comprehensive discussion and review of protocols at the institution, the research scenario, for the implementation of strategies and professional training in order to follow the established protocols, as well as the need for supervision and systematic surveillance to ensure safe practice.

An audit conducted in 89 European hospitals showed that patient identification was rarely used, although considered a basic strategy, with evidence that demonstrated its effectiveness in reducing adverse events and improving patient safety.⁽¹²⁾

Regarding the absence of wristbands and nonconformities in the identification protocol verified in the study, there is a reality that must be recognized and ratified of high vulnerability by exposing the patient and the health professionals to preventable risks in health care.

Just like other studies, whose objective was adherence to institutional care practice protocols, patient identification has cultural and behavioral issues that need to be addressed and managed with the health care team and with patients.

Some authors have been researching these aspects. Investigating the opinion and practice of health professionals on patient identification, 17.1% did not know the reason for using the wristband, and 40.7% did not believe that using the wristband would prevent errors.⁽¹³⁾

Similar results were found in a study on the opinion of the health care team and parents on patient identifiers in a pediatric unit. The health care team demonstrated knowledge about the

need of using the wristband (65% to 92%) and its benefits (64% to 78%). Regarding the parents, 89% believed it was necessary to use the wristband, and 57% reported that using the wristband could prevent mistakes. On the other hand, only 34% of children were identified with wristbands.⁽¹⁴⁾

The involvement of patients and families in the identification process as an active partner in the process of confirming their own data, or as a holder of information on the measures and protocols involving identification and institutional security, creates allies in the process who are able to collaborate with health professionals to define and implement shared care plans.^(10,15)

In the same way, they understand that patient/user participation is one of the main points of safe care, and it was found that 91% of patients reported being able to collaborate to prevent errors that occur in hospitals; 84% felt comfortable asking the nurse to confirm the data on their wristbands.⁽¹⁶⁾ Most patients (90.2%) agree to use the wristband identification during the hospital stay, even if these provide identifying codes of clinical conditions or risk.⁽¹⁷⁾

Given the results, the need to review the work processes of health professionals and the identification protocol is noted, for the training of health professionals and acquisition of inputs appropriate for neonatal care.

Thus, the wristband is the identification method for knowledge, and will be an effective method to eliminate the flaws, if the patient accept its use, if the information is correctly provided, and if professional caregivers value and check the identification wristband during their care processes.⁽¹⁸⁾

Conclusion

The findings guided the redesign of care and management processes, and supported the restructuring of the protocols and the implementation of educational measures and strategies, impacting the consciousness of health professionals, to value the unequivocal identification of the patient.

Acknowledgements

The Hospital of the Clinics, School of Medicine, University of São Paulo, for allowing the study.

Collaborations

Tase TH and Tronchin DMR collaborated with the study design, data collection, analysis and interpretation of data, article writing, critical review of the intellectual content, and approved the final version to be published.

References

1. World Health Organization. Patient Safety: rapid assessment methods for estimating hazards [Internet]. 2002. [Cited 2010 Marc 28]. Available from: http://www.who.int/patientsafety/research/methods_measures/en/index.html
2. American Academy of Pediatrics, Steering Committee on Quality Improvement and Management and Committee on Hospital Care. Policy statement-Principles of pediatric patient safety: reducing harm due to medical care. *Pediatrics*. 2011;127(6):1199-210.
3. Bates DW, Larizgoitia I, Prasopa-Plaizier N, Jha AK. Global priorities for patient safety research. *BMJ*. 2009;338:b1775.
4. World Health Organization. 2007b. Launch of nine patient safety solutions. Geneva; 2007b. [cited 2010 Mar 20]; [about 4p]. Available from: http://www.who.int/patientsafety/events/07/02_05_2007/en/index.html.
5. World Health Organization. World Alliance for patient safety. Forward programme 2008-2009 [Internet]. 2008 [cited 2010 Marc 20]. Available from: http://www.who.int/patientsafety/information_centre/reports/alliance_forward_programme_2008.pdf
6. World Health Organization. Patient identification [Internet]. 2007a [cited 2010 Mar 20]. Available from: <http://www.ccforspatientsafety.org/common/pdfs/ICPS/Patientsolutions.pdf>
7. Latham T, Malomboza O, Nyirenda L, Ashford P, Emmanuel J, M'baya B et al. Quality in practice: implementation of hospital guidelines for patient identification in Malawi. *Int J Qual Health Care*. 2012;24(6):626-33.
8. Suresh G, Horbar JD, Plsek P, Gray J, Edwards WH, Shiono PH, et al. Voluntary anonymous reporting of medical errors for neonatal intensive care. *Pediatrics*. 2004;113:1.609-19.
9. Walley SC, Berger S, Harris Y, Gallizzi g, Hayes L. Decreasing patient identification band errors by standardizing processes. *Pediatr Rev*. 2013;3(2):108-17.
10. Phillips SC, Saysana M, Worley S, Hain PD. Reduction in pediatric identification band errors: a quality collaborative. *Pediatrics*. 2012;129(6):1587-93.
11. Hain PD, Joers B, Rush M, Slayton J, Troop P, Hoagg S, et al. An intervention to decrease patient identification band errors in a children's hospital. *Qual Saf Health Care*. 2010; 19:244-7.
12. Suñol R, Vallejo P, Groene O, Escaramis G, Thompson A, Kutryba B et al. Implementation of patient safety strategies in European hospitals. *Qual Saf Health Care*. 2009;18 Suppl1:57-61.

13. Martínez-Ochoa EM, Cestafe-Martínez A, Martínez-Sáenz MS, Belío-Blasco C, Caro-Berguilla Y, Rivera-Sanz F. Evaluación de la implantación de un sistema de identificación inequívoca de pacientes en un hospital de agudos. *Med Clin*. 2010;135(Supl 1):61-6.
14. Dackiewicz N, Viteritti L, Fedrizzi V, Galvagno I, Ferrería JC, Boada N et al. Evaluación de la opinión del equipo de salud y padres sobre la identificación de los pacientes pediátricos. *Arch Argent Pediatr*. 2011;109(2):105-10.
15. Liang L. The gap between evidence and practice. *Health Aff (Millwood)*. 2007;26(2):w119-21.
16. Longtin Y, Sax H, Leape LL, Sheridan SE, Donaldson L, Pittet D. Patient participation: current knowledge and applicability to patient safety. *Mayo Clin Proc*. 2010;85(1):53-62.
17. Cleopas A, Kolly V, Bovier PA, Garnerin P, Perneger TV. Acceptability of identification bracelets for hospital in patients. *Qual Saf Health Care*. 2004;13(5):344-8.
18. Smith AF, Casey K, Wilson J, Fischbacher-Smith D. Wristbands as aids to reduce misidentification: an ethnographically guided task analysis. *Int J Qual Health Care*. 2011;23(5):590-9.