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RESEARCH

Evaluation of the risk of misidentification of women in a public maternity hospital

Avaliação do risco de erro na identificação de mulheres numa maternidade pública

Evaluación del riesgo de error en la identificación de mujeres en una maternidad pública

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ABSTRACT

Objective: To determine the frequency of similar names and hospital records of women in a public teaching maternity hospital and the risk of misidentification resulting from the similarity in spelling and pronunciation of the names and in records. **Method:** Quantitative, documental and case study of 5,975 admissions that occurred between 2011 and 2014. The data name, admission and discharge date, date of birth, hospital record and bed number were collected from an electronic information system. Analysis encompassed descriptive statistics and design of an algorithm for comparison of text and sound. **Results:** Examination of the names revealed that 86% of the misidentification cases resulted from identical surnames and 96.5% from a sound similarity in the first names. There were patients with identical first and last names at least one day a week. **Conclusion:** The risk of misidentification of patients is a reality, which stresses the importance of checking and pronouncing the complete names correctly.
Descriptors: Patient Identification Systems; Quality of Health Care; Patient Safety; Evaluation of Health Services; Maternal-Child Nursing.

RESUMO

Objetivo: Determinar a frequência de nomes e registros hospitalares similares das mulheres em uma maternidade pública de ensino e o risco para erro na identificação decorrente da similaridade na grafia e pronúncia do nome e no registro. **Método:** Estudo quantitativo, documental, casuística de 5.975 admissões ocorridas entre 2011 e 2014. Os dados: nome, data de admissão, alta, nascimento, número do registro hospitalar e leito foram coletados do sistema de informação eletrônico. A análise ocorreu pela estatística descritiva e construção de um algoritmo de comparação de texto e som. **Resultados:** Quanto à grafia idêntica, 86% decorreram do sobrenome e 96,5% de similaridade do som no primeiro nome. Relativo ao risco, houve, em ao menos um dia da semana, mulheres com o primeiro nome e sobrenome idênticos. **Conclusão:** O risco para ocorrência de equívocos na identificação dos pacientes é uma realidade, ratificando a importância da conferência e pronúncia correta do nome completo.
Descritores: Sistemas de Identificação de Pacientes; Qualidade da Assistência à Saúde; Segurança do Paciente; Avaliação de Serviços de Saúde; Enfermagem Materno-Infantil.

RESUMEN

Objetivo: Determinar la frecuencia de nombres y registros hospitalarios similares de mujeres en una maternidad pública de enseñanza, y el riesgo de error identificatorio derivado de la homografía y homofonía del nombre y en el registro. **Método**: Estudio cuantitativo, documental, casuística de 5.976 admisiones ocurridas entre 2011 y 2014. Los datos: nombre, fecha de admisión, alta, nacimiento, número de registro hospitalario y lecho fueron recolectados del sistema de información electrónico. Se realizó análisis por estadística descriptiva y construcción de algoritmo comparativo de texto y sonido. **Resultados**: Respecto a idéntica escritura, 86% derivaron del apellido y 96,5% por equivalencia fónica del primero nombre. Respecto al riesgo, hubo, al menos una vez por semana, mujeres con nombre y apellido idénticos. **Conclusión**: El riesgo de ocurrencia de errores identificatorios de los pacientes es una realidad, ratificándose la importancia de la verificación y pronunciación correcta del nombre completo.
Descriptores: Sistemas de Identificación de Pacientes; Calidad de la Atención de Salud; Seguridad del Paciente; Investigación en Servicios de Salud; Enfermería Maternoinfantil.

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INTRODUCTION

Patient safety is one of the fundamental principles in health care and an indispensable component to quality management worldwide.

According to the World Health Organization (WHO), patient safety consists of prevention of mistakes and adverse effects associated with health care, constituting a central value of quality[1].

Patient identification is one of the nine resolutions described by WHO to prevent or mitigate harm and represents a challenge to health service managers, especially regarding the involvement of patients in care and change of behavior of professionals to check identifications during assistance.

In all sectors of health care, incorrect or absent patient identification keeps resulting in incidents and mistakes, compromising safety of patients and organizations, affecting mainly diagnoses, therapeutics, procedures and the trust relationship between users and service providers[2].

Consequently, patient identification is a crucial step in care that has not been given due attention by healthcare professionals, who attribute this attitude to work overload, familiarity with the patients and knowledge of the needs of each user[3].

It is known that patient misidentification interferes negatively with health care, leading to deaths, sequelae, suffering, negligence and decrease of trust of patients and users in the health system[4].

Over the years, identification wristbands with information about the patient have been used as a method to avoid misidentification, but evidence suggests that the inadequate use of this instrument can offer risks to patient safety[5].

Nonconformities in patient identification include ambiguous labeling, simultaneous presence of homonymous or paronymous patients, high bed turnover and flaws in communication or security systems, such as absence or inaccessibility of identification wristbands[6].

In addition, there are facts that add to the problem, such as the high incidence of homonyms and presence of patients whose names have similar spelling or pronounciation. Despite being usual in a hospital routine, these issues can generate potential or real risks and require attention and the implementation of measures to minimize negative consequences.

The most common causes of ambiguity in the identification process are similar hospital records in 44.1% of the admitted patients a day, followed by identical surnames in 34% of the cases and similarity in the sound of the surname in 9.7% of the events[2].

A survey carried out in a teaching hospital focused on tertiary care in the city of São Paulo to evaluate the conformity of identification wristbands used in women and newborns verified that observance of identification rules occurred in 22.3% of the children and 58.5% of the puerperas. As for the protocol steps, such as presence and number of wristbands, components of identification and condition of the wristbands, the components of identification in women reached a high conformity percentage (93.4%), whereas the condition of the wristbands obtained a lower value (70%), with a statistically significant difference. For newborns, the items with the highest and the lowest conformity percentages referred to the components of identification and condition of the objects, respectively, with 69% and 44.5%. The latter result was explained by the usage conditions and size of the wristbands, considered unsuitable for newborns[4].

In face of the above and taking into account the importance of the issues involving safety in patient identification and their repercussion in health condition and quality of care, the objectives of the present study were to determine the frequency of similar names and hospital records of women in a public teaching maternity hospital and assess the risk of misidentification resulting from similarity in spelling and pronunciation of these names.

METHODS

Ethical aspects

The investigation obtained the approval of the Ethics Committee for Analysis of Research Projects of the institution where the study took place.

Study design, setting and period

The study was quantitative and documental, with a retrospective data collection in the obstetrics unit of a public teaching hospital, focused on tertiary care, in the city of São Paulo, and analyzed admissions that occurred between October 2011 and October 2014. Data were gathered in May 2015.

Population or sample: inclusion and exclusion criteria

The sample consisted of 5,975 women. Data collection was performed by accessing the institutional hospital census and selecting the variables full name, admission and discharge dates, date of birth, hospital record, and bed number. The inclusion criteria was every woman admitted in the unit for obstetric reasons and those whose pregnancy did not result in a viable fetus as a consequence of disorders such as gestational trophoblastic disease, curettage in the womb, ectopic pregnancy and dead newborns. It is valid to stress that the hospital census is stored in the institutional electronic information system; the chosen variables were collected and transferred to a database designed for this purpose.

Study protocol

Data collection was carried out by one of the authors through the access to the electronic hospital census and desired variables were sent to the referred data bank for statistical treatment.

The variables name and record number were analyzed according to three criteria. The first was spelling and phonetics of first names, surnames, first and last names and full names when these presented identical spelling or similar pronunciation. The second standard was hospital record numbers with the last digits inverted. The third criterion involved women sharing the same room or ward.

The risk percentage was assessed taking into consideration identical spelling and similar phonetics/sounds of name, surname and hospital record as a function of the occupancy of beds, rooms and wards throughout four years. The investigated unit has 35 beds in two wards; in one of them 15 beds are intended for rooming-in care.

Analysis of results and statistics

The collected data were submitted to descriptive and inferential statistical analysis. A specialist in the field used two softwares, one of them employed in the design of the algorithms necessary to the analysis. The first tool was oriented to text comparison and could identify names with identical spelling; the second instrument examined the similarity in phonetics/sound of words in Portuguese. The risk percentages were calculated and analyzed with one of the statistical softwares[7].

RESULTS

The results shown in table 1 reveal the aspects of similarity of women's names in the studied sample over four years.

According to the data in table 1, the percentage of homonyms was 0.5%, equivalent to 29 people. This value is significantly lower than the one obtained in the category first and last names, which was 26.8% or 1,603, and the one related to phonetic similarity, which reached 42.4% or 2,535. As for the hospital records, similarity in the two last digits was found in 106 cases or 1.8%.

Another important finding referred to the number of days in which there were women with identical names in the admission unit that were also in the same ward. The result was 231 days, or 20.5% of the days observed. When the identical spelling was restricted to first and last names, the value was 151 days, equivalent to 13.4% of the time. In 13 of these days, two patients used the same bed, given that one was discharged in the morning and the place was immediately occupied by another woman.

Regarding the possible risks resulting from similarity in the spelling of the names of the women that were admitted to the same ward, it was observed that the highest percentages related to the first name and surname in 20.8% of the cases and to phonetics/sound in 34.9%, in rooming-in care.

Figure 1 depicts the percentage of patients at risk/day as calculated by the algorithms using identical name and surname and similar phonetics/sound as criteria.

Table 1 – Distribution of the women's names showing the types of similarity in spelling and phonetics/sound of first names, surnames, first and last names and full names, São Paulo, Brazil, 2015

Type			Match	No match	Total
First name	Similar phonetics/sounds	n	5,763	212	5,975
		%	96.5	3.5	100
	Identical	n	4,896	1,079	5,975
		%	81.9	18.1	100
Surname	Similar phonetics/sounds	n	5,625	350	5,975
		%	94.1	5.9	100
	Identical	n	5,140	835	5,975
		%	86	14	100
First and last names	Similar phonetics/sounds	n	2,535	3,440	5,975
		%	42.4	57.6	100
	Identical	n	1,603	4,372	5,975
		%	26.8	73.2	100
Full name	Identical	n	29	5,946	5,975
			0.5	99.5	100

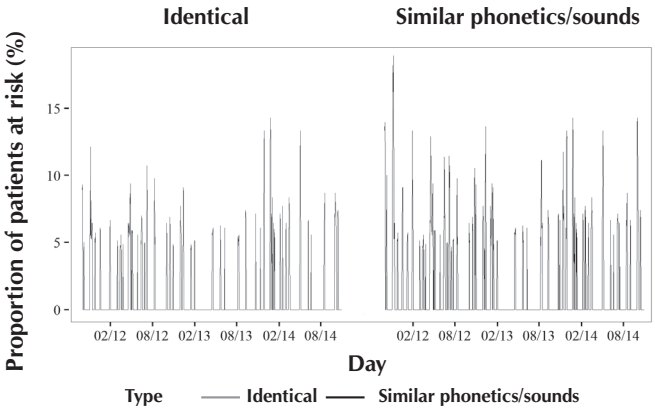

Figure 1 – Distribution of women at daily risk of misidentification according to similarity of first name and surname, first and last names, and full name in the comparison for identical and similar phonetics/sounds, São Paulo, Brazil, 2015

The graphs in figure 1 show that 10% of the monitored women were at risk of misidentification throughout their hospital stay as a consequence of having identical first and last names. As for the similar phonetics/sounds, the highest occurrence (17.5% of the patients) was registered in the first week of December 2011, followed by January 2012, January 2013 and January, June and October 2014. The analysis revealed that there was some risk of misidentification during 21% of the days in a year. As for identical spelling of first and last names, the risk was present at least one day a week.

DISCUSSION

The World Health Organization considers identification a high-priority area to improve patient safety and recommends that all healthcare organizations have systems or protocols that assure the correct identification and training for the staff, in addition to inform patients during the identification process[8].

Guaranteeing unequivocal patient identification is the main point to prevent mistakes or nonconformities in health care, but it is still challenging and requires well-defined protocols and commitment from professionals[9-10].

Each healthcare organization has its own identification procedure to keep the process accurate based on standard operating procedures or strategies to improve patient safety[9,11-13].

Nevertheless, the identification protocols for wristbands advocate some fundamental measures, such as content clarity, commitment of professionals, registry of the time of placement, removal and substitution of wristbands, description of activities and identification mechanisms in situations in which standard operating procedures cannot be followed, which encompass

limb amputation or malformation, edema, large burns, unconscious or unknown patients, among others.

Patient identification is crucial to guarantee the safety of the public, impacts on every care area and does not require great investments or technology[14]. The same author carried out a survey in a teaching hospital and reported a high risk of misidentification due to a frequent similarity in names, lack of knowledge of dates of birth and overcrowding of the investigated unit. The nursing team was interviewed and 62% of the participants agreed that the wristband was useful in the daily practice, although adherence to the identification policy or protocol in the institution was low. Another mentioned aspect was the difficulty to identify unconscious patients and those with similar names, and decision making in cases that are not covered in protocols.

A study performed in a neonatal intensive and semi-intensive care unit analyzed the three steps of the identification protocol – identification components (mother's full name, presence of the mother's name in all wristbands, identification code and health insurance plan), conditions of the wristbands (legible identification items and making of the accessory) and number of wristbands – found 17.8% of overall nonconformity, with the third item being the one with the highest percentage of issues (10.7%)[15].

Taking these facts into account, improving the implementation of an identification system in different care contexts and realities is a priority and a challenge, given the care complexity represented by multiple clinical interventions, such as that of the staff interacting with patients.

As previously mentioned, awareness of healthcare professionals of patient safety and identification through the use of wristbands demands management and care elements, involving safety culture, design of the work process, training of teams, understanding, commitment and responsability, both from workers and users, as constitutive elements for an effective identification process in healthcare facilities[16].

Engaging patients to check their identification, using a proper and direct language, minimizing communication barriers, standardizing the whole identification process and verifying and managing the defined protocol are a few recommendations that can be adopted to improve patient safety, with the aim of monitoring quality[3].

Correct patient identification in medical records, whether they are manual or electronic, is also a critical safety issue. Sharing and integration of patients' data depend on an accurate retrieval and combination of variables in the records and reliable softwares to store and manage this information. Consequently, it is recommended to use other identifiers, in addition to names, to achieve unequivocal identification.

Use of identifiers in wristbands can be especially problematic when numbers are involved, as in the case of hospital records. If the instruments are lost or a mistake in one of the digits occurs, data checking can be compromised, as a survey carried out in the United Kingdom revealed[17]. In this study, 1.1% of the examined patients were affected by this type of issue.

Another aspect that has to be emphasized is the single electronic hospital record. The Health Department of the United Kingdom recommends that this record is unique and used by all health services, but privacy and safety issues, such as theft of personal information, and flaws in the combination of patients in these electronic systems indicate the need to resort to other identifiers. Clinical data, name, surname, date of birth, social security number, address, phone number, postal code and gender can be combined to allow the correct patient identification and prevent duplication of medical records or multiple recording of the same user, as has been demonstrated by several authors[18-23].

Similar or identical names can originate mistakes when computed systems require identifiers – first and last names and numerical registries – to find patient information in health services[2,24].

Other factors contribute to the risk of misidentification, such as change of names caused by alterations in marital status or difficulties originated in cultural diferences, as in the use of the surname instead of the first name. Translation of names can result in words and sounds that can be written and spelled in different ways, making combinations of names and surnames and leading to the existence of more than one full name for a single patient. In the present study there was a high percentage of similarity in the first name (86%) and in similar phonetics/sounds (96.5%). If analysis is restrained to patients in the same ward, the results are 20.8% and 34.9%, respectively.

Thus, remembering patients' names and writing and pronoucing them correctly are fundamental to develop a human and effective interaction with users, with respect and safety[25].

The present study found similarity of names and surnames of women that shared the same room or ward, but inclusion of date of birth as a second identifier prevented misidentification episodes, stressing the need to use more than one identifier and exclude bed and room numbers.

The challenge posed by the current issues is to work on patient identification based on an analysis of cultural, social and organizational aspects and the use of technology. In addition, it is necessary to examine the outcomes caused by practices that diverge from nonconformity and can have serious consequences in healthcare. The implementation of a computer-based identification system is a practical means to decrease the risk of mistakes; the most common current technologies are bar codes and radio-frequency identification.

One of the most effective measures to solve problems related to identification via wristbands seems to be the attention dedicated to the process, education and involvement/attitude with the committed and responsible participation of professionals and patients.

Collaboration between these parts must be incorporated and reinforced in health care. A change in attitudes and behaviors is indispensable to achieve it, aiming at effective patient identification.

Recognizing the most effective approach to help patients to change behaviors and improve results in health care is considered a significant progress in the quality of services[12,26].

Other situations that expose healthcare professionals to the risk of misidentification include high number of patients, incomplete pronunciation and spelling and sound similarity, among others[2,8,19,21,27].

A study estimated that the use of identification wristbands and verbal checking of the patient's name by professionals have 80% of effectiveness for correct identification[28].

Study limitations

The main limitation of the present study was the lack of examination of cases of patients that have common and identical names and different hospital records. The authors believe that the rates of events of this type are high and constitute a risk for patient safety. It is also worth emphasizing that the survey took place in a single teaching maternity hospital focused on tertiary care.

Even with review and modifications in the process of patient identification and the definition of strategies for their implementation in hospitals, there are still problems in the effectiveness and evaluation of these measures to minimize harms to patients.

Contributions to the nursing, health or public policy areas

The findings of the present investigation allowed to know the real situation of misidentification risk to which patients, families and healthcare professionals are exposed.

The results confirm the multiplicity of variables involved in the patient identification process, their relation to safety and the challenges faced by managers and workers to guarantee risk-free care to users and professionals. The authors believe that the presented data can help restructure care and management processes, being a basis for the implementation of education strategies and measures and to raise awareness of patients, families and health teams of their responsability to achieve unequivocal patient identification.

CONCLUSION

Incorrect patient identification is a concern worldwide and a source of mistakes in health care, with negative effects to patients, professionals and health institutions.

The present study revealed that women admitted to the obstetric unit of a public maternity hospital were exposed to misidentification risk resulting from similar or identical spelling or sound of names and surnames. There was 1.8% similarity in hospital records.

The findings point to the need to resort to other identifiers, develop collaboration between healthcare professionals and patients, check data in identification wristbands and invest in different identification methods, such as bar codes and radio-frequency.

It is also fundamental to make efforts in care and management spheres to design and implement strategies to change behaviors of professionals and users, aiming to improve identification systems and mitigate mistakes in health care.

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