

<http://dx.doi.org/10.1590/0104-07072016002310014>

## COMMUNICATION AND PATIENT SAFETY IN THE CHANGE-OF-SHIFT NURSING REPORT IN NEONATAL INTENSIVE CARE UNITS

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**ABSTRACT:** Quantitative descriptive-exploratory research, aiming to identify the factors related to patient safety concerning the communication on the shift change process of nursing teams. The research was conducted between April and May 2012 with 70 nursing team professionals from three Neonatal Intensive Care Units, using a validated tool about the shift change. For data analysis, Chi-Square and Student's t-tests were used. The results showed that the factors that could endanger patient safety during the shift change were delays, early departures, nursing procedures/care and side talk. The nurses had better perception of these factors when compared with nursing assistants. Professionals with shorter training reported more information related to "patients' clinical conditions", "drugs/medicines" and "nursing care/procedures". Therefore, there are pictures for safe communication, even with the incipient knowledge about patient safety and communication on shift reports, being necessary trainings and specific protocols.

**DESCRIPTORS:** Patient safety. Communication. Nursing, team. Intensive care units, neonatal.

## COMUNICAÇÃO E SEGURANÇA DO PACIENTE NA PASSAGEM DE PLANTÃO EM UNIDADES DE CUIDADOS INTENSIVOS NEONATAIS

**RESUMO:** Estudo quantitativo, descritivo-exploratório, com objetivo de identificar fatores relacionados à segurança do paciente quanto à comunicação no processo de passagem de plantão das equipes de enfermagem. Realizado entre abril e maio de 2012, com 70 profissionais de enfermagem de três Unidades de Cuidados Intensivos Neonatais, através de instrumento validado sobre passagem de plantão. Para análise dos dados, utilizaram-se os testes Qui-Quadrado e *T-Student*. Os resultados demonstraram que os fatores que podem comprometer a segurança do paciente durante a passagem de plantão devido à interrupção e, assim, causando possível perda de importantes informações para a assistência segura, foram atrasos, saídas antecipadas, realização de cuidados e conversas paralelas. Os enfermeiros possuíam melhor percepção desses fatores, e profissionais com menor tempo de formação referiram mais informações relacionadas à "condição clínica do paciente", "medicações" e "cuidados gerais/procedimentos", não sendo uma condição comum a todos. Portanto, há indicativos de comunicação segura, tornando-se necessários treinamentos e protocolos específicos.

**DESCRIPTORIOS:** Segurança do paciente. Comunicação. Equipe de enfermagem. Unidades de terapia intensiva neonatal.

## LA COMUNICACIÓN Y LA SEGURIDAD DEL PACIENTE EN EL CAMBIO DE TURNO EN LAS UNIDADES DE CUIDADOS INTENSIVOS NEONATALES

**RESUMEN:** Estudio cuantitativo, descriptivo/exploratorio, para identificar factores asociados con la seguridad del paciente en la comunicación del cambio de turno de grupos de enfermería. Realizado entre abril/mayo de 2012, con 70 profesionales del equipo de enfermería de tres Unidades de Cuidados Intensivos Neonatales, con formulario validado con informaciones del cambio de turno. Los datos se analizaron con pruebas chi-cuadrado y *T de Student*. Los resultados demostraron que los factores que pueden comprometer la seguridad del paciente durante el cambio de turno produjeron retrasos, salidas anticipadas, realización de cuidados y conversaciones paralelas. Los enfermeros tenían una mejor percepción de estos factores en comparación con los técnicos. Profesionales con formación inicial mencionaron más informaciones: "la condición clínica del paciente", "drogas", "cuidados generales/procedimientos." Se puede concluir que hay indicios para la comunicación segura, incluso con el conocimiento limitado de la seguridad del paciente y la comunicación en el cambio de turno, por lo que es necesaria formación y protocolos específicos.

**DESCRIPTORIOS:** Seguridad del paciente. Comunicación. Grupo de enfermería. Unidades de cuidado intensivo neonatal.

## INTRODUCTION

Communication plays a fundamental role in society, in which man's ability to relate with his peers is a basic element of survival and satisfaction of his needs.<sup>1</sup> The communication act is aimed at exchanging information, persuading behaviors, sharing experiences and teachings, through verbal (written and spoken language) and non-verbal communication (gestures and graphic symbols).<sup>2</sup>

In the health area, ineffective communication figures among the root causes of more than 70% of the care errors.<sup>3</sup> Due to the problems related to patient safety, in 2004, the World Health Organization (WHO) created the Global Patient Safety Alliance, defining patient safety as "reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum".<sup>4,5</sup>

Among its activity areas, one area is focused on communication in health institutions, and more specifically communication while passing the patient's case, known as the shift change.<sup>4</sup>

At that moment, information is transferred between the nursing professionals during the shift changes, representing an important moment in this team's communication process, as it provides focus and orientation to the professionals who will start the work shift, directly influencing the quality and continuity of the care delivered.<sup>6</sup> The shift changes between the health teams are considered fundamental tools for the continuity of care and the prevention of errors in patient care.<sup>7</sup>

The continuity of health care requires information sharing in a process that involves the transfer and acceptance of responsibility of some aspects of care for a patient or group of patients.<sup>7</sup>

It is observed, however, that the lack of integrated communication processes among professionals is a factor that contributes to the errors in care practice. The way the information transfers between health teams are structured during shift changes can be considered critical for the occurrence of adverse events.<sup>3,7</sup>

Among the factors that hamper the shift changes, the following are appointed: the excessive or reduced amount of information; limited opportunity to ask questions; inconsistent information; omission or transfer of mistaken information; non-use of standardized processes; unreadable records; lack of teamwork; interruptions and distractions. It is highlighted that some professionals also indicate

that patient information is lost during the shift changes.<sup>3,8-9</sup>

From the patient safety perspective, the client profile at Neonatal Intensive Care Units (NICUs) mostly consists of preterm infants with severe respiratory problems, low weight, and who developed some complication before, during or after birth.<sup>10</sup>

In addition, it is a complex sector with particularities, due to the conditions of the hospitalized people. It stands out from the other sectors for being closed, stressful, with highly technical devices and the uninterrupted activities of professionals from different health areas. Among the remaining specificities, the following are highlighted: the use of an almost always invasive diagnostic and therapeutic approach; the small margin between favorable responses and possible adverse reactions to the established treatment; little or no reaction due to the immaturity of the infant organism and, in addition, the great vulnerability, especially of the younger ones.<sup>11-12</sup>

In view of the above, from the perspective of patient safety at the NICU's, each day, health professionals experience situations of life and death. In addition to the immense concern with the morbidities deriving not only from the anticipated birth and low weight, there are possible problems originating in care for the newborns.<sup>13</sup>

Due to the importance of communication in the work process of the nursing team and the specificity of care and human resources the NICUs need, the objective in this research was to identify the factors related to patient safety regarding communication in the shift change process of nursing teams at NICUs, based on the following research question: What communication-related factors can interfere in patient safety during the shift change of nursing teams at Neonatal Intensive Care Units?

## METHOD

Descriptive-exploratory, quantitative study, undertaken at three Neonatal Intensive Care Units of three public hospitals in the South of Brazil. The data were collected between April and May 2012, after approval 2278/12 by the Research Ethics Committee at *Universidade Federal de Santa Catarina*. The study sample consisted of 70 nursing professionals among the 112 active at Neonatal Intensive Care Units, at the hospitals where the data were collected.

The following inclusion criteria were established to participate in the study: nursing team professionals admitted to the unit or who had changed sectors more than a month earlier, when the professional had already adapted to the sector routines; professionals who were not on holiday, leave or day-off during the data collection.

To collect data, a form was elaborated based on the factors related to communication that can interfere in patient safety, developed through a narrative literature review, based on scientific articles found on the Portal Evidence-Based Health, an important open-access portal in health, using descriptors and key words on the theme. The tool was validated by four experts in the area and divided in: identification of the professional; general aspects of shift change; information transferred during shift change and professional's perceptions on the shift change process.

The NICUs were identified as A, B and C. When the study was developed, NICU A had five active bed, NICU B 32 beds; and NICU C seven beds. In the data collection scenario, the heads of each NICU were contacted, explaining the research objectives and phases. Next, the three hospitals were visited daily, during three or four days, when the nursing professionals were invited to participate in the study.

The subjects received the forms together with an envelope and two copies of the Free and Informed Consent Form. Then, doubts were clarified on the study and instructions were given to, after completion, close the envelopes and place them in a box available at the service and sign the Informed Consent Form, if the participant wished to, one copy of which should be placed in the envelope, while the participant should keep the other.

Descriptive statistical analysis of the data was used and, to check for associations between the categorical variables, Pearson's Chi-Square test was applied, with a 5% significance level ( $p < 0.05$ ). For the statistical analysis of the interval data, two preconditions were satisfied: the adherence to the normal distribution curve on an interval scale, based on the Kolmogorov-Smirnov test, and Levene's homogeneity test. As a normal distribution was obtained for all interval data, Student's t-test was used. These tests were developed in SPSS 17.0.

## RESULTS

Seventy nursing professionals from the three NICUs participated in the research, being 17 (24.28%) from NICU A, 25 (35.71%) from NICU B and 28 (40%) from NICU C. In total, 17 (24.3%) baccalaureate nurses, 39 (55.7%) nursing technicians and 14 (20%) nursing auxiliaries participated\*. The mean age was 40.7 years; the mean length of work in health was  $16.6 \pm 9.23$  years; and the mean experience at the NICUs was 10.75 years  $sd \pm 7.23$  years. As regards the work shift, 10 (14.28%) professionals worked mornings, six (8.57%) afternoons, 36 (51.42%) nights and 18 (25.71%) mornings and afternoons. In addition, 43 (61.4%) subjects had a job contract and 27 (38.6%) had two.

The shift change at the NICUs was verified in terms of operational issues, according to the professionals' opinion, as shown in Table 1.

**Table 1 - Operational characteristics of shift changes at Neonatal Intensive Care Units. Florianópolis-SC, Brazil, 2014**

Operation of shift change		n	%
Participants	Nursing team	66	94.3
	Nursing team and other professionals	4	5.7
Modality	Verbal	42	60
	Verbal and written	28	40
	At the patient's bedside	49	70
Place	Unit corridor	5	7.1
	Nursing room	5	7.1
	Other	11	15.8
Time	Up to 5 minutes	3	4.3
	6 to 10 minutes	27	38.6
	11 to 20 minutes	35	50
	20 to 30 minutes	4	5.7
	30 minutes or more	1	1.4

As observed, according to Table 1, most professionals who participated in the shift change were members of the Nursing team (94.3%), referring to the greater use of the verbal modality of shift change (60.0%), which took place at the patient's bedside (70.0%). The participants considered that most shift changes took between 11 and 20 minutes (50%).

\* In Brazil, nursing is divided into three categories: nurse, nursing technicians and nursing auxiliaries, being the highest level is a nurse, followed by technicians and auxiliaries. Translator's note.

Besides the factors related to the operation of the shift changes, the professionals were also asked to indicate which of the factors cited in the tool

could interfere in the communication during the shift changes, related to the professionals' behaviors and attitudes (Table 2).

**Table 2 - Factors interfering in communication during the shift change, related to the behavior/attitudes the professionals referred at Neonatal Intensive Care Units. Florianópolis-SC, Brazil, 2014**

Behaviors/attitudes during shift change		n	%
Is the patient information in the patient history and/or file reviewed	Yes	44	62.8
	No	17	24.3
	Sometimes	9	12.9
Is information verified through repetition or reading by the colleague	Yes	33	48.6
	No	11	16.1
	Sometimes	13	19.2
Can questions be asked and doubts solved	Does not know	11	16.1
	Yes	68	97.1
	No	2	2.9
Activities of colleagues during shift change	Pays attention to the information	68	97.1
	Side talk	22	31.14
	Delays	24	34.8
	Care actions	15	21.4

According to Table 2, most of the professionals (62.8%) answered that there were opportunities to review the information in the patient history and/or files, or through the repetition or reading of the information transmitted by the colleague (48.6%), as well as to ask questions and solve doubts during the shift changes (97.1%). In addition, the majority

affirmed that the colleagues were paying attention to the information transmitted (97.1%), although 31.4% affirmed the existence of side talk and 34.8% indicated their colleagues' delays.

The professionals were asked about the delays and early departures and the main types of interferences, as shown in Table 3.

**Table 3 - Factors interfering in communication during shift change according to professional categories at Neonatal Intensive Care Units. Florianópolis-SC, Brazil, 2014**

Characteristics	[a] Nurse		[b] Technicians		[c] Auxiliaries		Relation	p
	n	%	n	%	n	%		
Delays and early departures interfere in shift change								
Yes	13	48.1	8	29.6	6	22.2		
No	4	9.3	31	72	8	18.6	[a];[c]	<0.001
Types of interferences								
Interruptions	8	40	7	35	5	25		
Side talk	9	42.8	7	33.3	5	23.8	[a];[b]	0.019
Noise	11	61.1	4	22.2	3	16.7	[a];[b] e [a];[c]	<0.05
Inquiries	6	40	5	33.3	4	26.7		
Others	3	100	-	-	-	-	[a];[b]	0.04

The results showed that 38.6% of the professionals indicated that the delays and early departures negatively affected the shift change, while 61.4% referred that these behaviors caused no interference. Among these, a statistically significant

relation was found between baccalaureate nurses and nursing technicians, and the technicians were the ones who most mentioned that the delays and anticipated departures did not cause problems when compared to the nurses.

Concerning the main types of interferences in the shift change, a statistically significant relation was found between “side talk”, “noise” and “others” and the professional categories, and the nurses identified these interferences more frequently than

the technicians.

In addition, the characteristics of the shift change were checked in terms of the information transmitted and the possible relations between the functions, according to Table 4.

**Table 4 – Characteristics of shift change according to professional category at Neonatal Intensive Care Units. Florianópolis-SC, Brazil, 2014**

Characteristics	[a] Nurse n (%)	[b] Technicians n (%)	[c] Auxiliaries n (%)
Is all information needed transmitted?			
Yes	4 (44.4)	5 (55.6)	0 (0)
No	12 (21.4)	31 (55.4)	13 (23.2)
I don't know	1 (33.3)	2 (66.7)	0 (0)
How do you characterize the shift change at your Unit?			
Bad	-	-	-
Regular	3 (30)	7 (70)	-
Good	8 (20)	21 (52.5)	11 (27.5)
Very good	6 (35.3)	8 (47.1)	3 (17.6)
Excellent	-	3 (100)	-
Important information to be transmitted*			
Problems	10 (28.6)	20 (57.1)	5 (14.3)
Clinical condition†	10 (25.6)	26 (66.7)	3 (7.7)
Administrative issues	1 (100)	0 (0)	0 (0)
Tests	3 (25)	8 (66.7)	1 (8.3)
Medication‡	6 (31.6)	13 (68.4)	-
Treatment changes	3 (21.4)	11 (78.6)	-
Patient identification	2 (40)	2 (40)	1 (20)
Relatives/companions	5 (50)	5 (50)	-
Care/procedures	6 (27.3)	15 (68.2)	1 (4.5)

\* The subjects in the item important information to be transmitted could mark more than one option; †Statistically significant difference between Nurse and Auxiliary [ $p=0.03$ ] and between Technician and Auxiliary [ $p<0.01$ ]. ‡Statistically significant difference between Nurse and Auxiliary [ $p=0.04$ ] and between Technician and Auxiliary [ $p=0.03$ ];

It is highlighted that most professionals answered that, during the shift changes, all necessary information about the patient was discussed (80%). In addition, the shift change tended to be considered “good” (57.1%) and none was characterized as “bad”. As to the information considered important during the shift change, the “patient’s clinical condition” (55.7%) and “problems during the shift” (50%) were highlighted.

A statistically significant relation was found between nurses and auxiliary nurses and between nursing technicians and auxiliary nurses regarding information about the “clinical condition”. Also, a statistically significant relation existed between nurses and auxiliary nurses and between technicians and auxiliary nurses concerning “medication”

information.

The length of experience at the NICU was analyzed, as well as its relation with the amount of information provided, showing statistical significance ( $p<0.01$ ). Hence, participants with a longer mean length of experience at the NICU indicated more frequently that all information about the patient was transmitted.

The time since graduation showed that information about “medication” and “general care/procedures performed” were less referred among professionals who had graduated earlier. Also, regarding information about the “patient’s clinical condition”, the time since graduation of professionals who referred this information was shorter than that of the professionals who did not.

## DISCUSSION

The Ethics Code of the Nursing professionals discusses the guarantee of continuous nursing care in safe conditions, as well as written and verbal, complete and reliable information provision, necessary to guarantee the continuity of care, as duties and responsibilities.<sup>14</sup>

Hence, the quality of the information transmitted during the shift change depends on the professionals' skills, the modality chosen, the time spent and the team's engagement in registering the data that indicate the problems involving the patient.<sup>15</sup>

Thus, it was observed in this study that the shift changes mostly involve the nursing team. Nevertheless, there is a trend for the activity to involve all health categories, furthering the meeting among these professionals, aiming to minimize the risks of following a fragmented view of the patient.<sup>16</sup>

As to the shift change modality, the verbal type alone was used more frequently to change the shifts. The use of the verbal modality is considered as a moment of reflection, when the professionals interact, permitting the request of additional information and the discussion of patients' cases, and the information transmitted is based on the professional's capacity to list the main information about the patient.<sup>17</sup>

This form is not found in a study that identifies that most professionals used a combination of the verbal and written modalities for the shift changes.<sup>18</sup> When the verbal modality is used alone, frailties and low information retention may occur, due to the large amount of data transmitted.

In this study, many professionals also informed the bedside handover. Studies indicate a certain trend to choose this location for the handover process. Hence, the bedside handover offers opportunities to enhance the patient safety, as issues related to the information loss are minimized, as the family can be present during the handover.<sup>19-21</sup>

Concerning the time spent on the handover, if the time can be appropriate to each sector's need, to the type of care provided, to the number of professionals on the team and to the client characteristics, the information can be better focused to truly represent the essence of what needs to be transmitted.<sup>15</sup>

Besides the operational aspects of the shift changes, the factors related to the behaviors/conducts and knowledge/perceptions of the professionals also interfere in the process. Thus, it was ob-

served that the baccalaureate nurses demonstrated better knowledge on the negative implications of the delays and early departures for the shift changes than the nursing technicians.

Also, the delays and early departures are also perceived as factors that interfere in the success and evolution of the shift changes. During the process, no gaps in the communication process can remain, as this factor can directly affect the care practice.<sup>15</sup>

It was verified that the delays and early departures can cause problems, as well as the side talk and noise. A study shows that side talk can interfere, as information can be forgotten or mistaken information transferred, and less information can be retained. The noise can change the focus of those involved, when some information might be lost or forgotten.<sup>22</sup>

Another relevant factor during the shift change related to communication refers to the type of information transferred. WHO indicates information related to the patient's current condition, treatment and changes/complications that happened and may happen during the shift as the main information to be transmitted.<sup>4</sup> In addition, clear language should be used; with concise information; without abbreviations/jargons; without interruptions; without parallel conversations; using standardized instruments and technological resources; and involving interaction among the professionals to clarify doubts, discussion and reflection on the patient.<sup>4,15-16</sup>

Hence, in this study, it was verified that some professionals adopted attitudes that benefited patient safety, such as the review of information in the patient histories and/or files, before and during the shift changes. Also, they affirmed that they clearly understood the information transmitted, solving doubts and asking questions.

In addition, regarding the information transmitted, it was observed that, in general, the nursing professionals transmitted information according to WHO recommendations,<sup>16</sup> including information on the patient's clinical conditions and problems during the shift. Nevertheless, the fact of transmitting information on the prescribed drugs, tests, treatment changes and general care/procedures applied less frequently is concerning.

Also, among the professional categories that better perceived the importance of transmitting this information, the nurses and nursing technicians stood out. Hence, frailties were revealed regarding

the auxiliary nurses, which could be justified by the education level. It is emphasized that, in practice, technicians and auxiliary nurses often perform the same activities, despite the distinguished theoretical complexity of the training courses for these categories and the lesser hour load for auxiliary nurses.

This picture is highlighted in a Brazilian study, which mentions concern with the absence of criteria to delimit these professionals' competences according to the complexity of care, with a view to attending to the standards established in professional regulations.<sup>23</sup>

Concerning the trend for professionals with longer time since graduation to transmit relevant patient information less frequently, this may be related to the fact that they graduated before the global patient safety movement, which stood out after the year 2000.<sup>5</sup>

Hence, the changes and curricular updates at nursing schools can offer a more comprehensive view on patient safety, as it is observed that more recently graduated professionals transmit relevant patient information more frequently. Therefore, professional recycling and training are important strategies for professionals who have graduated earlier.

As regards the quality of the shift changes, although the professionals indicated lack of information to be transmitted, it was verified that they perceived the shift change as positive for patient safety since, in general, they characterize their shift changes as "good".

This same picture was observed in another study, in which the professionals also identified the shift changes positively.<sup>24</sup> On the opposite, in a European study, the nurses reported dissatisfaction with their shift changes, characterizing them as "poor in information" about the patient's condition.<sup>25</sup>

## CONCLUSION

Today, health institutions are expected to discuss issues related to patient safety and effective communication more frequently. In that context, the shift change is one of the communication systems for the nursing team, during which relevant information is transmitted with a view to keeping care going and guaranteeing patient safety.

Factors related to the eligibility of the modality, the presence of multidisciplinary teams, interruptions, side talk, delays and early departures,

noise, relevant information transmitted during this activity and the level of education and the continuous recycling process were considered as factors interfering in the shift change process.

Thus, with a view to changing the current picture, colleges and technical schools related to all health professionals need to teach subjects and develop research focused on patient safety, permitting the education of professionals with theoretical and practical background on the theme, stimulating multidisciplinary work.

Also, it is important for institutions to create a concise safety culture in the job context, including the redesign of the work process and the continuous recycling of nursing professionals.

Therefore, articulated work among the main spheres involved is suggested, with a view to the development and promotion of positive actions for patient safety, including the creation of strategies that minimize patient risks, guaranteeing safe and high-quality care.

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