

## Nursing shift handover in surgical clinics: the interface between communication and patient safety

*Handover de enfermagem em clínicas cirúrgicas: a interface entre a comunicação e a segurança do paciente*

*Traspaso de turnos de enfermería en clínicas quirúrgicas: la interfaz entre la comunicación y la seguridad del paciente*

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### ABSTRACT

**Objective:** to identify factors affecting communication between nursing teams during shift handover on surgical wards, and how it interfaces with patient safety. **Method:** this quantitative, observational study, with descriptive analysis, was conducted on nine surgical wards of a university hospital from April to July 2019, using an observation script and record form. **Results:** 54 nursing shift handovers were observed, and 123 nursing personnel participated. Of particular note among the factors analyzed were absence of a standardized handover instrument (85.19%) and the presence of noise (77.78%). Most of the participants (86.93%) pointed to missing information at handover as the factor most prejudicial to care. **Conclusion:** the factors that interfered with communication during handover were: noise, omission of information, absence of a standardized instrument, and staff lateness. It is believed that identifying these factors will help develop better strategies.

**Descriptors:** Health Information Exchange; Patient Handoff; Communication; Patient Safety.

### RESUMO

**Objetivo:** identificar os fatores que interferem na comunicação entre as equipes de enfermagem durante o *handover* de troca de turno em clínicas cirúrgicas, e sua interface com a segurança do paciente. **Método:** estudo quantitativo, observacional, com análise descritiva, realizado de abril a julho de 2019, por meio de um roteiro de observação e um formulário, em nove clínicas cirúrgicas de um hospital universitário. **Resultados:** observou-se 54 *handovers* e participaram 123 profissionais de enfermagem. Dentre os fatores analisados, destaca-se, a ausência de instrumento padronizado de *handover* (85,19%) e presença de ruídos sonoros (77,78%). A maioria dos participantes (86,93%) apontaram a omissão de informações, na transferência de cuidados, como o fator mais prejudicial para assistência. **Conclusão:** os fatores que interferiram na comunicação durante o *handover* foram: ruídos sonoros, omissão de informações, ausência de instrumento padronizado e atrasos dos profissionais. Acredita-se que a identificação desses fatores contribua para o desenvolvimento de melhores estratégias.

**Descritores:** Troca de Informação em Saúde; Transferência da Responsabilidade pelo Paciente; Comunicação; Segurança do Paciente.

### RESUMEN

**Objetivo:** identificar los factores que afectan la comunicación entre los equipos de enfermería durante la transferencia de turno en las salas quirúrgicas y cómo interactúa con la seguridad del paciente. **Método:** este estudio cuantitativo, observacional, con análisis descriptivo, se realizó en nueve salas quirúrgicas de un hospital universitario de abril a julio de 2019, utilizando un guión de observación y formulario de registro. **Resultados:** se observaron 54 traspasos de turno de enfermería y participaron 123 personal de enfermería. Entre los factores analizados destacan la ausencia de un instrumento de traspaso estandarizado (85,19%) y la presencia de ruido (77,78%). La mayoría de los participantes (86,93%) señaló la falta de información en la entrega como el factor más perjudicial para la atención. **Conclusión:** los factores que interfirieron en la comunicación durante el traspaso fueron: ruido, omisión de información, ausencia de instrumento estandarizado y tardanza del personal. Se cree que identificar estos factores ayudará a desarrollar mejores estrategias.

**Descriptores:** Intercambio de Información en Salud; Pase de Guardia; Comunicación; Seguridad del Paciente.

## INTRODUCTION

In the health field, effective communication is one of the essential factors for quality patient care, as it enables the provision of care free of incidents and adverse events with ethics and responsibility. On the other hand, ineffective communication is among the factors that generate more than 70% of the errors in healthcare<sup>1</sup>. In this sense, different national and international studies point to evidence that ineffective communication can compromise patient safety<sup>2-5</sup>.

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In the hospital environment, during handover there is one of the most important moments of communication among health professionals, defined as the sharing of information about the patient and the transfer of responsibility for the care among the health professionals. This sharing occurs during the transition of the professionals' work shifts, clinical rounds, when the patient is transferred from one sector to another within the same health institution, or when the patient is transferred to another institution. The main objective of handover is to guarantee continuity of care through effective communication<sup>6-8</sup>.

However, communication problems are also present during handover, indicated as a challenge to be faced from the perspective of safety<sup>9</sup>. Examples of these problems are seen in studies developed in intensive care unit (ICU) settings<sup>3-4,10</sup>. In one, carried out in Australia, 459 incidents related to failures in the communication process were identified. The main flaw was called "transfer without transfer", with 28.8% (132), when the patient is transferred between sectors of the hospital without adequate communication. In addition, 19.2% (88) of omissions of information on the critical conditions of patients were observed, and omissions on the care plan were verified with 14.2%<sup>3</sup>.

These studies, which integrate the analysis of knowledge production on the theme, indicate that research on handover focuses, primarily, on the analysis of communication in complex units, with limited evidence when referring to inpatient units, which shows the relevance of addressing the topic in the particularity of the surgical clientele.

This is because it is considered that, in the context of the characteristics of the patient hospitalized in surgical units, communication is also complex, in view of the circulation of professionals, patient turnover, the countless technologies and procedures that are applied to patients in the pre- and post-operative, in the specificity of each surgical specialty, such as orthopedic, neurosurgical, urological, among others<sup>11</sup>.

Given the above, the following was asked: What are the factors that interfere with communication between nursing teams in surgical clinics during handover? The objective was to identify the factors that interfere in the communication between the nursing teams during the shift change handover in surgical clinics, and their interface with patient safety.

## LITERATURE REVIEW

This study is based on two concepts: communication and patient safety. The first is understood as a continuous process of exchange of relevant information in which the message is sent, received and understood. The second, as reducing to an acceptable minimum the risk of unnecessary harms associated with health care<sup>1,10</sup>. Regarding the analysis of the literature on communication during handover and its links with patient safety, the studies show that communication errors in handover are caused by the lack of standardization and organization of the communication process; they are characterized by information shared incompletely, incorrectly and even absent; and, as a consequence, delays in the diagnosis and treatment of the patient, as well as in the provision of care<sup>12-13</sup>.

Furthermore, barriers have been identified that hinder and negatively influence the communication process during handover, such as different languages and knowledge among the interlocutors, parallel conversations of professionals in the sectors, duration, non-participation of the teams, use of cell phones, and interruptions by professionals from other categories, among other difficulties that do not allow for the transmission of the patients' clinical conditions<sup>14-16</sup>, in addition to the fragile organizational indicator of institutional culture<sup>17</sup>.

## METHOD

An observational and descriptive study with a quantitative approach, presented with the support of the STROBE tool<sup>18</sup>. The research was conducted in surgical wards of a public hospital located in the city of Rio de Janeiro, during the period from April to July 2019.

The locus hospital is of a university nature and provides medium and high complexity care in several health specialties. The surgical clinics total nine units, in which patients are treated in the pre- and post-operative periods of the specialties: general surgery, thoracic surgery, vascular surgery, urological surgery, lithiasis, neurosurgery, plastic surgery, orthopedics/traumatology and gynecological surgeries.

As for the phenomenon studied in this research, the nursing handover activity in the hospital's surgical clinics does not follow a standardized model, as each unit adopts its own handover model, either with the participation of the entire team or by professional category, at the bedside, or at the nursing station. The shift change handovers throughout the analyzed clinics occur at 7 am and 7 pm. The nursing teams are composed of nurses: chief, on duty, day laborer, resident, in addition to nursing technicians. Nurses take turns on a work schedule, which totals 30 hours per week, with the

exception of residents, who have a workload in the sector of 40 hours per week. There are differences in the dimensioning of human resources and beds of the units but, in general, the mean number of professionals per shift is 1 assistant nurse and 4 nursing technicians on duty.

The research was conducted in the aforementioned nine units, in two stages. The first stage was developed with the nursing professionals working in these units. The professionals were chosen according to the following criteria: being a nursing professional working in the selected units, and participating at the handover moment. Professionals who were away from the sector during the research period were excluded.

In the second stage, the nursing professionals initially captured were observed during the nursing handover of the surgical clinics during the shift changes between the teams. In this stage, the unit of analysis was nursing handover and the sample consisted of 54 observations, six observations in each surgical ward that served as the locus for the research. The inclusion criteria were the handover activities of the surgical wards at shift changes, developed by nursing professionals, during both shifts (7 pm and 7 am). There was no exclusion criterion.

Both in the first and second stages of data collection, the sample was simple random, with no sample calculation. The justification for this strategy is based on the fact that this is a work originating from a nursing residency program; therefore, in view of the limited time for its operation and the turnover of the main researcher's work among the clinical sectors of the institution, it was not possible to expand the sample number, which is a methodological limitation of the research.

Data collection took place in two stages, the first by means of the questionnaire and the second through observation using a structured instrument. There was no validation of the instruments applied, due to the aforementioned justification. Therefore, there was an exploratory phase in each sector studied, so as to attract professionals working in the handover and to carry out the invitation to participate in the research. This phase aimed to promote the researcher's approach to the reality of each scenario and naturalize their presence during handover, so that the professionals develop their communication in a spontaneous and authentic way, reducing the possible implications of the researcher's presence during the observation stage.

The questionnaire was subdivided into two sections, one composed of seven closed questions aimed at characterizing the professional profile of the participants, and the other with two open questions to capture information about clinical situations in which the communication problems between the nursing team during handover interfered with the care and safety of the surgical patient. The second stage took place through the application of an observation script in the checklist format, with the objective of identifying, in the practice, the factors that interfere in the handover between the nursing teams. In this stage, the pilot test was carried out in order to identify potential problems during the application of the designed instrument<sup>18</sup>. The test was carried out using a random sample of 5 shift change handovers at the study's surgical clinics. After applying the test, it was necessary to make changes to the instrument to meet the objective of the study.

The observational script was prepared by the researcher with 12 variables related to the factors that interfere with communication, raised from the analysis of the literature on the topic<sup>15-19</sup>. Each variable had an operational definition and the researcher should choose one of three possible markings: yes, no and it does not apply. The variables analyzed were the following: handover unit; characteristics of the place of development of the handover regarding the access of the participants; delay in the arrival of professionals for handover; presence of the nurse; use of a handover instrument; completeness/incompleteness of clinical information, verified by the presence of the nurse in the subsections of the instrument organized based on adaptation of Identification, Situation, Background, Assessment, Recommendation (ISBAR); presence of noise (from conversations and equipment); inattention of the professional during handover; unnecessary comments involving patients or staff members; opportunity to ask questions; duration of the handover.

All the observations were performed by the lead researcher, during approximately three months. After collection, the numerical data were organized in spreadsheets with the aid of the Microsoft Excel® 2010 program, subdivided according to the type of variables, the professionals, and those related to the object of investigation in question, thus constituting the database.

After this organization, the database was reviewed and, subsequently, data was submitted to analysis, with the use of descriptive statistics through the percentage frequency. To quantify the data from the open question, the answers were categorized into one of the variables that interfere with communication during handover and then analyzed.

The study was approved by the Research Ethics Committee of the hospital that served as the locus for the research, under opinion number 3,081,422 on December 13<sup>th</sup>, 2018. All the collected data were treated in a quantitative manner, without identifying the handover activities and the participants, therefore, with guaranteed anonymity. The individuals who agreed to participate in the research signed the Free and Informed Consent Form (FICF).

## RESULTS

A total of 123 professionals were included in the first stage of the study (there was no exclusion of these), the equivalent of two teams from each unit or one third of the professionals. For the second stage, 54 handovers were observed, with six observations in each surgical ward.

The data in Table 1 refer to the 123 professionals who participate in the handover activity.

**TABLE 1:** Characterization of the nursing professionals working in the surgical clinics who participate in the handover activity (n=123), Rio de Janeiro, RJ, Brazil, 2019.

Characteristics of the professionals	n	%
<b>Gender</b>		
Female	103	83.74
Male	20	16.26
<b>Age group</b>		
20-25	9	7.32
26-35	36	29.7
36-45	37	30.08
46-55	31	25.20
≥ 56	10	8.13
<b>Title/Function</b>		
Nursing technician	81	65.85
Nurse	42	34.15
<b>Time of training (in years)</b>		
<1	2	1.63
1-10	51	41.47
11-20	41	33.33
≥ 21	31	25.20
<b>Performance in the surgical clinic</b>		
Nursing technician	81	65.85
On duty nurse	20	16.26
Resident nurse	15	12.20
Head nurse	5	4.07
Daily nurse	2	1.63
<b>Time of experience in the surgical unit</b>		
<1	18	14.63
1-10	80	65.05
11-20	13	10.57
≥ 21	7	5.69
<b>Contract with the institution</b>		
Scholarship fellow	76	61.79
Server	47	38.21
<b>Number of contracts</b>		
1	39	31.71
2	62	50.41
3 or more	7	5.69

Of the data related to professional position/function, the largest number of participants are nursing technicians: 81 (65.85%). Regarding time since graduation, there was predominance of 11 to 20 years: 41 (33.33%), and in relation to the time of the institutional bond: 76 (61.79%). There was an expressive number of professionals who have more than one job: 69 (56.1%).

Table 2 shows the data distribution of the 123 professionals on the experience of situations in which communication problems occurred during shift changes. The participants were asked if they had already experienced

situations in which communication problems during shift changes could interfere with patient care. The omission of relevant information for assistance was punctuated by 64 (86.93%) of the participants.

**TABLE 2:** Distribution of data referring to factor that interfere in communication during nursing handover in the surgical clinics, according to the participants (n=123). Rio de Janeiro, RJ, Brazil, 2019.

<b>Handover</b>	<b>n</b>	<b>%</b>
<b>Have you ever experienced situations of communication problems during shift changes that interfered with assistance?</b>		
Yes	73	59.35
No	50	40.65
<b>Categorization of the situations experienced by the participants in relation to communication</b>		
Omission of relevant information for assistance	64	86.93
Change in correct patient identification	2	2.74
Failure to register medication scheduling and checking	2	2.74
Delay of the professional to assume the duty	2	2.74
Personal disagreements between team members	1	1.37

Note: The categorization of the situations experienced by the participants do not add up to 100% because the participants could mention more than one example.

Table 3 shows the data from the second stage of the research, related to the 54 handover moments observed. The distribution of the factors that can interfere in communication during nursing handover in the surgical clinics based on the observation is verified.

**TABLE 3:** Distribution of the factors that can interfere in communication during nursing handover in the surgical clinics, based on the observation (n=54). Rio de Janeiro, RJ, Brazil, 2019.

<b>Variables</b>	<b>Yes</b>		<b>No</b>	
	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Privacy	07	21.96	47	87.04
Delay of professionals	39	72.22	15	27.78
Presence of the nurse	40	74.07	14	25.93
Handover instrument	08	14.81	46	85.19
Incomplete information	22	40.74	32	59.26
Noises	42	77.78	12	22.22
Inattention of the professional who is on duty	16	29.63	38	70.37
Inattention of the professional who passes the shift	07	12.96	47	87.04
Unnecessary comments involving patients or team members	11	20.37	43	79.63
Limited opportunity to ask questions	07	13.46	45	86.54
Duration of the handover moment (in minutes)				
<5	09	16.67	-	-
6-10	19	35.19	-	-
11-15	13	24.07	-	-
16-20	06	11.11	-	-
> 21	7	12.96	-	-

## DISCUSSION

The analysis of the data obtained in the present study allowed for the characterization of nursing professionals in surgical clinics, as well as obtaining data that reflect the daily practice of these professionals in relation to handover activities.

As for training time, the majority had up to 10 years (41.47%), which suggests a group composed of inexperienced professionals and in a transition phase between inexperience and a more advanced stage of development of professional competence. This analysis is complemented by data on the experience time of the professionals in surgical clinic, in which it was also found that there was a predominance of professionals with 1-10 years of experience (65%).

Regarding this aspect, it is highlighted that experienced professionals, with more than ten years, have in-depth knowledge in nursing clinic and have a broad vision, perspicacity, speed of action, and define priorities with greater competence<sup>19</sup>. Beginners, in general, have difficulties in applying theoretical knowledge in communication and

management practice<sup>20</sup>. The study of the experience variable and its effects on patient safety have been deepened in the scientific community with results that point to an impact on the occurrence of errors and adverse events<sup>21</sup>.

Regarding the number of employment contracts, it was identified that 56.1% of the participants had more than one employment relationship. This data is relevant, as it can have a direct influence on handover. This is because the displacement from one service to another can lead to delays and, consequently, to low effective participation in handover. Thus, the need to take on more than one job to supplement their income can be a factor for the untimely start of duty<sup>22</sup>.

Regarding the factors that interfere with communication during handover in surgical clinics, it was observed that 75.92% occurred in the nursing stations and, of the total, 24.07% were developed at the bedside.

The handover that occurs at the nursing station is categorized in the literature as the verbal handover model, so that professionals share information about patients verbally in another location in the sector that is not at the bedside. It usually occurs at the nursing station without the professionals being able to have a good view of the patients they are talking about<sup>8</sup>, in addition to the possibility of interruptions during their performance.

On the other hand, the bedside handover model is considered to be the most complete and with the possibility of reducing communication-related failures. This model promotes patient involvement, thus being able to generate more patient safety and satisfaction<sup>8</sup>.

There is a growing body of evidence that supports the handover model with patient participation due to its positive impact on patient safety. An example is a research study that compared patient-centered handover with transfer at the nursing station in an oncology center with regard to patient satisfaction. Subtle differences were found in patient satisfaction in relation to the two handover models, with handover with the patient's participation being more satisfactory<sup>23</sup>.

Another study explored the effectiveness of an intervention in order to facilitate nursing handover at the bedside and reinforce patient safety in geriatric and rehabilitation wards. The results showed better practices regarding bedside handover, increased patient satisfaction, and reduced number and severity of adverse events<sup>24</sup>.

Therefore, despite the fact that there is no guarantee of privacy at the bedside, as the patients hear what is being said about them, it becomes yet another barrier to their safety, thus allowing for possible corrections of some incorrect information communicated and for an opportunity to clarify doubts about their treatment. However, even nursing professionals having knowledge about the benefits of bedside handover with the patient's participation, they often do not adopt this behavior<sup>25</sup>.

Another intervening factor observed was delay of professionals with 72.22%, which results in the frequent need for the repetition of information that had already been transmitted. This statement is corroborated by the study carried out in 2017, according to which incomplete team and delays are factors that hinder handover and create possible gaps in assistance, since the information will have to be repeated for those who are not present and that, many sometimes, due to lack of time, they are not transmitted<sup>26</sup>. Thus, it is estimated that delays can have repercussions on the nursing care to be performed, as illustrated by a research study that evaluated communication noise during handover and its impact on patient safety. Duplicate and unnecessary procedure situations were identified, one of them due to the absence of one of the team members at the handover moment<sup>4</sup>.

However, a positive factor verified from the data analysis was the presence of the nurse during handover (74.07%). A number of studies highlight the role of nurses in this context because, in addition to their professional representation in front of the team, they have the function of coordinating handover through management and work organization, articulating the communication and coordination of care provided, which contributes to sharing relevant information<sup>26-27</sup>.

Among the 54 handovers observed, 85.19% showed no use of any instrument for standardizing this activity. This absence can lead to negative repercussions in relation to communication, since relevant information was forgotten and was the reason for the questions by the professional who was on duty, such as: diagnosis, reason for hospitalization and type of surgical procedure. This data is complemented by the result of questioning professionals about the problems experienced during handover that interfered in the care and safety of the surgical patient. Of the participants, 59.35% stated that they had already experienced communication failures during the shift change, of which 86.93% claimed problems related to the omission of relevant information for assistance.

Thus, such data show that the omission of information about the patient's clinical condition and care plan is also a problem in surgical units. Information about the patient's history, clinical status, as well as specific data on organic systems support the professional in the development of a specific care plan for the needs of each patient, which brings quality to care. Therefore, the sharing of information during handover is an activity that supports continuity of care and clinical decision-making, being extremely important that such information is correct and complete.

Thus, when information is absent, incomplete and/or misleading, the risks of incidents with harms are increased, as indicated by studies that highlight the repercussions of failures in the communication process during handover in the care clinic. These repercussions on patient safety run through the following clinical impacts: suspension of surgeries, procedures and exams; delays in diet therapy, with patients taking long periods without food; medication errors, falls, phlebitis, and pressure injury<sup>4,9,28</sup>.

Therefore, the literature recommends that handover be a standardized process, so that everyone involved can understand and play their roles in order to improve patient care. This standardization has been done, most of the time, with the use of instruments, which work as memory aids so that the professional contemplates all the relevant information for care<sup>29-31</sup>.

A study developed in a hospital in the southern region of Brazil implemented a standardized communication process during the temporary transfer of care for hospitalized patients between inpatient units and areas of diagnostic and therapeutic procedures. There was the construction of the form of transition of care with the participation and training of teams, which promoted awareness of the importance of continuity of care and standardized the safety items to be checked before, during and after transfers, favoring patient safety during transport<sup>30</sup>.

Finally, there is an expressive presence of noises during handover (77.78%) among which the following stand out: side conversations (61.11%), sound of the TV (31.48%) and ringing of the telephone (18.52%). These factors are considered difficulties for handover because, in addition to causing noise in the environment, they generate interruptions that impair the flow of message sharing by the sender and their understanding by the receiver, therefore compromising the effectiveness of communication, which, in turn, can lead to errors during assistance. Thus, distractions due to parallel conversations and the lack of attention to the theme of handover by the use of cell phones are behavioral factors that become common among professionals and require awareness actions to improve the quality of communication during handover<sup>4,10,32</sup>.

As for the duration of handover, a balance in its distribution was observed when considering the number of handovers lasting up to 10 minutes and those over 10 minutes. In this regard, it should be noted that the time used to perform the handover needs to be sufficient to allow for the transmission of the necessary information about the patients, not extending too much so as not to imply prolonged distancing from the patients<sup>26</sup>.

The main limitation of the study was methodological, in view of the short time for data collection that impacted on the number of handover observations and greater data coverage.

## CONCLUSION

In the light of the concepts applied in the research and considering the proposed objective, the identified factors that interfere with the communication in the shift handover were the following: noise, omission of information, absence of a standardized instrument, and delays by professionals. All of these factors are considered noises in communication, as they interfere in the emission and/or understanding of the message, compromising the fidelity of communication and with the possibility of causing care actions with the potential to have a negative impact on patient safety.

Therefore, it is recommended to standardize handover with the use of an instrument for this purpose. In addition to standardization, interventions are needed to promote awareness and more effective team participation, starting from the premise that, when understanding the factors that cause communication errors, minimizing noise, it is necessary to implement actions that work as barriers which avoid the recurrence of such errors to improve the safety of the surgical patient.

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