



## RESEARCH ARTICLE

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### NURSING FACING RISK MANAGEMENT AND PATIENT SAFETY IN THE USE OF OXYGEN THERAPY

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#### ABSTRACT

The study aimed to know how the protocols related to oxygen therapy are used in the work process of the nursing team with focus on risk and safety management of patients using this therapy. It is a qualitative, descriptive and exploratory research. The participants were nurses working in clinical, surgical, obstetrical and pediatric hospitalization units of a general hospital. Data were collected through interviews and analyzed according to thematic analysis. The results showed that there is no standardization of oxygen therapy practices. This hinders the effectiveness of care and, consequently, weakens the patient safety in the hospital environment. Results reveals that the actions related to oxygen therapy require modifications, such as the implementation of protocols in the work process of the nursing team. In conclusion, it is necessary to advance in the development of safety strategies that favor the provision of safe practices to patients, including oxygen therapy.

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#### INTRODUCTION

The quality of assistance provided to users of health services is characterized by countless factors, among them, the definition of strategies that minimize risks and, consequently, enable the provision of safe care for patients. Factors that threaten safety and impede the achievement of better health care outcomes are present in the work processes, and are responsible for diverting the actions of nursing teams, being necessary to correct these difficulties (WHO, 2009). In health care, the safety is the basic principle for the quality of care. In this sense, patient safety is defined as the reduction to a minimum acceptable risk and damages associated to health care, considering the complexity of procedures and treatments as potential to cause damage to health (WHO, 2009). Thus, the safety in care results from correct actions of health professionals, adequate processes and systems in institutions and services, as well as the

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implementation of government policies that require a permanent effort of professionals (BRAZIL, 2013). Therefore, it is necessary to create strategies for risk prevention during the different actions that nursing develops, particularly in the hospital setting. An example of such actions is oxygen therapy, which, through high and low flow devices, is frequently used for the maintenance and reestablishment of respiratory functions. The safe action regarding to oxygen therapy is conditioned to the supply of complementary oxygen according to the needs of the patient and the use of recommended techniques. Otherwise, there may be complications if their use is inadequate. The reduced supply will not entail reducing or minimizing oxygen deficiencies and gas exchanges. However, the supply of oxygen beyond clinical and therapeutic needs can have detrimental effects on patients health (ALVES, *et al.*, 2008, NEVES, LOBÃO, 2012). For Alves *et al.* (2018) the knowledge acquisition, ongoing training and the implementation of protocols based on scientific evidence are fundamental to standardize and subsidize professionals in the performance of safe care. Although health institutions have

invested in changes and adoption of patient safety protocols, it is still observed in assistential practice, that many of them present difficulties in adhering to these standards (MULLER, et al. 2015; ZOTTELE, et al. 2017). Considering this condition, it was verified the need to know how the oxygen therapy protocols have been used in the work process of the nursing team. Based on it, the research question was elaborated: how are protocols related to oxygen therapy used in the work process of the nursing team, and what strategies are used in risk management and patient safety related to this therapy? Therefore, the objective was to know how the protocols related to oxygen therapy are used in the work process of the nursing team with focus on the risk and safety management of patients using this therapy.

## MATERIALS E METHODS

It is a qualitative, descriptive and exploratory research. The participants were nurses who work in the clinical, surgical, obstetrical and pediatric of a medium-sized general hospital located in the northwestern part of the state of Rio Grande do Sul, Brazil. Nurses with less than six months of work in the institution were excluded, this was considered the minimum period for adaptation the professional in the hospital routines. The data were collected from April to May 2015, through a semi-structured interview, carried out in the participants' workplace at a previously scheduled date and time. The data collection shifts were interspersed among morning, afternoon and evening, making it possible to address a larger number of participants. The interviews were recorded, with authorization, and later transcribed and analyzed. Data analysis followed the steps of the content thematic analysis (BARDIN, 2011). The ethical aspects followed the precepts of Resolution n° 466/2012 of the National Health Council. The study was approved by the Ethics Research Committee with Human Beings of the Federal University of Santa Maria, under Consolidated opinion n° 928.494 and Certificate of Presentation for Ethical Consideration (CPEC) n° 38920814.5.0000.5346 in January 2015. In order to guarantee the anonymity of the participants, these were identified by the letter 'E', of nurses, followed by the respective numbers according to the order in which the interviews were conducted. In this sense, E1 was used for the first nurse, E2 for the second nurse and so on.

## RESULTS

Seven female nurses, mean age 33 years old, mean training time of six years and five years of professional experience participated in the study. Regarding the educational training process, two nurses have postgraduate degree in lato sensu (public health and surgical center), and all reported having attended Permanent Education (PE) meetings, promoted by the local public university in partnership with the work institution. From the reading and exploration of the material coming from the interviews, two categories emerged: Non-standardization of the work process and implications for patient safety; Factors that generate safety /insecurity in hospitalized patients.

### Non-standardization of the work process and implications for patient safety

The standardization of work practices is fundamental for the good progress of the work process in health institutions. In this sense, one of the ways to promote consistency and uniformity

in the work routine is the use of Standard Operating Protocol (SOP). The importance of the use of SOPs in the work process is recognized by the participants of this study:

*I think it guides everyone, you come in today to work and if you have difficulty you will read and will know how to do it (E1).*

*There we can follow exactly the adequate forms, following standard use in the institution (E3).*

*But it is very little used. Our SOP was made, but it was not printed, it was not distributed and hence we do not have daily SOP handling (E5).*

Considering nursing care related to oxygen therapy, the interviewees cited: attention to medical prescription; assessment of clinical status and vital signs of the patient; attention to the device used and oxygen dosage (O<sub>2</sub>); use of the oximeter for evaluation of O<sub>2</sub> saturation; humidifier fluid exchange; and the carrying out of "weaning", that is, removal of O<sub>2</sub>. These actions can be observed as follows:

*Firstly, I assess if patient needs O<sub>2</sub>, assessing the saturation, perfusion of the skin, if he/she has cyanosis. If the saturation has less than 90% install O<sub>2</sub> in campanula to 5 liters/minute, as routine. In newborn put the eye protectors (E2).*

*To take care of the O<sub>2</sub> amount prescribed to choose a catheter or mask. To observe oximetry, starting with a smaller amount. If the saturation follows good, maintains the level, otherwise increases to give greater comfort. Try to wean, take out or lower the level for a period by observing the oximetry (E3).*

In addition, the participants pointed out obstacles related to the medical prescription of oxygen therapy, which may generate insecurity in nursing professionals' actions:

*Mostly it is not prescribed oxygen therapy, only in the first prescription and then we end up doing an evaluation (E1). Medical prescription is complicated, they have resistance in making new prescription. Some doctors prescribe and then make the visit, or just prescribe (E3).*

Another relevant aspect is incomplete prescriptions, since few professionals prescribe the type of device and a dosage of oxygen to be used. Regarding the nursing records, the interviewees also cite the recurrence of incomplete nursing evolutions regarding oxygen therapy and its care.

### Security/Insecurity generating factors of hospitalized patient.

The Permanent Education (PE) is seen as an action that aims to implement safe practices by nursing professionals. Participants reported that in the research institution there is a PE program in partnership with a local public university. However, the statements do not reveal the results of these activities.

*We are now working with the PE for technicians and nurses (E1).*

*We had an PE meeting which was not proposed by the hospital, but by the university (E4).*

In this context, PE should assume the role of problematizing everyday life, focusing on improving the work process, and

identified as a healthy space for learning and exchange among nursing professionals. However, it was not possible to identify evidences of improvements in the statements of nurses. The sharing of knowledge in oxygen therapy is preponderant to discuss and think about patient safety. The following statements demonstrate that PE space was not adequately used to discuss and/or update knowledge regarding the way this therapy is administered, which is reflected directly in professional practice.

*Little knowledge with regard to oxygen therapy (E1).  
Often we use the wrong oxygen, harming the patient (E2).  
Most of the professionals are older, they have been worked in this area for a long time, and for years they have followed the usual routines (E3).*

Moreover, the participants indicated other limiting factors that corroborate the lack of effective care for patients undergoing oxygen therapy:

*Often oxygen is open, it is going off and the patient is not using it. Even though we guide the patient still happens. We face difficulties because the institution itself does not have minimum material resources. The number of professionals is small and patient numbers are large (E3).  
We do not have an oximeter, that makes it difficult, we have to borrow it for another unit. [...] Many family members mess the equipment (E5).*

Therefore, the autonomy of patients and their relatives in relation to the use, whether to use or maintain the oxygen therapy devices, even if their need is evident, also prevents the development of safe and qualified actions.

*It limits when the patient needs the oxygen, but s/he does not want to stay still and ends up taking it on their own. As for family members, they only call when they want to put it back, when you see, the patient is without (E1).  
They leave the oxygen on without using it. They think it's a trivial thing, they have no idea that it's a cost to the hospital, for them that is oxygen as if it were an ambient air (E3).  
Depending on the patient, there are some of them who mess, increase, take off when they think they do not need more and then fall to saturation, but that depends a lot on the patient, some of them are very collaborative and others are not (E4).*

The data reveal that it is necessary to rethink the actions in health involving all the segments responsible for planning and executing such care. The need to qualify care and, consequently, culminate in the safety of the patients who need the health services, in order to improve the actions and to seek resolution to the users.

## DISCUSSION

The results of this study show that SOP (Standard Operational Protocol) is considered an important tool for the development of the work, however, the interviewees pointed out that they do not use this strategy in its entirety, as a way of management and patient safety. The implementation of protocols assists in the prevention and occurrence of adverse events, making it as practice to promote patient safety (MULLER, *et al.*, 2015). Nogueira and Rodrigues (2015) affirm that the existence of

routines is fundamental to strengthen interpersonal relationships and reaffirm communication among professionals. Considering factors that interfere with patient safety, effective communication among staff and between professional and patient is one of modifiable factors that may have an effect on quality of health care. In this context, it is necessary to consider the diversity of the professionals who make up the team, since this condition often hinders the communication in relation to the differences in the formative process and also the influence of other factors such as the hierarchy and the greater or lesser authority among the members of the interdisciplinary team (ALVES, *et al.*, 2018; ROWLANDS; CALLEN, 2013). The inadequate registration of necessary information for care was pointed out as another factor that hinders the patient safety. It is important to consider that the registration of the information in the patient's record is an action that permeates the work of health professionals and, besides providing important information for the longitudinality and integrality of the care, also constitutes an ethical obligation and professional support (COLAÇO, *et al.*, 2015). It is from this document that we can see the commitment and the workforce of the health team. Therefore, the need to improve the registration in the medical records is evident, since this is an important tool for evaluation and investigation of health services (PARANAGUÁ, *et al.* 2016). The lack of material resources available for the implementation of care was also cited as responsible for not providing adequate patient safety, due to the lack of minimal equipment, the provision of specific care of oxygen therapy is compromised daily. The importance of organizing work adequately points to the need to adapt the service to the demand and to address issues such as professional sizing, material, human and financial resource management, presence and use of standards and protocols, working environment conditions, overload work and the conditions of the equipment (PARANAGUÁ, *et al.*, 2016).

The interaction among health professionals, patients and family members can also facilitate or hinder the maintenance of safety. Spaces where the patient and his or her family do not receive information about care, in which the professional-patient/family relationship is considered low, are considered to be unsafe environments. It is necessary to consider that communication is an important tool for the effective relationship among individuals and that, therefore, contributes directly to the prevention of incidents, since the patient is the last barrier for the error to occur (RIDELBERG, *et al.* 2014; SILVA, *et al.* 2016). It was found that several difficulties of the health care delivery system were revealed as responsible for the occurrence of adverse events. In the conception, organization and operation, culture and work practices, quality management, risk prospecting and learning ability from mistakes. This is because human beings are subject to errors and these are consequences, not causes. However, it is possible to act in those conditions in which human beings work, creating defenses in the system to minimize the occurrence of these errors (TOSO *et al.* 2016; ONGUN; INTERPELER, 2017; ROCHA, *et al.* 2017). Strengthening a safety culture at the hospital level is necessary and fundamental to patient safety, this can occur through individual and group values, attitudes, skills and behavior patterns, which determine commitment and proficiency in the management of a healthy organization and secure (REASON, 1990). Notably, the data indicate that in the institution studied the patient safety is fragile, regarding oxygen therapy. Thus, the non-standardization of care offered has been shown to be one of the

factors that results in fragility of the care praxis. The qualification of the work through the implementation of educational strategies, with the purpose of sensitizing and training professionals, is necessary in order to promote patient safety. In this sense, PE constitutes an essential tool for individual and collective training, in order to consolidate measures to improve the quality of health services. PE based on the assumptions of meaningful learning assumes the simultaneous function of guiding the development initiatives of professionals and also of strategies for changes in health practice, capable of overcoming established models and making institutional changes (BRASIL, 2014; PUGGINA, et al. 2015; MATTOS, 2017).

A study by Ferreira *et al.* (2016) with nurses from a public university hospital in the southern region of Brazil pointed out that the nurse's proactivity was associated with the opportunity to improve processes and optimize resources, favoring improved practices, as well as institutional development and visibility. Moreover, it has shown that proactivity can potentiate the identification and development of preventive strategies and solutions that contribute to quality, safety and integrality in care. Therefore, it converges with the idea that patient safety is a multi-causal state, which depends on several factors to be present and effective in health services (SOUSA; MENDES, 2014). The challenges that transpose professional practice are recognized as determining factors in the indicators of the assistance results. The number of professionals in the services, their involvement with the process and the valuation by the administration of the institution, are aspects that, in general, can enhance or impair the quality of the assistance offered to the user, once which reflect in the work practices of the entire health team (GASPARINO, 2017). In this sense, it is necessary to emphasize the need for professionals to have knowledge, skills and attitudes based on ethical commitment, responsibility and taking care of others (MATIELLO, et al. 2016; REIS, et al. 2017; YII-CHING, et al. 2018). For what health services can offer quality health care, it is fundamental that their managers analyze the cultural and organizational aspects of the institution, which interfere in the achievement and final result of health care (LOURENÇÃO; TRONCHIN, 2016; GOLLE, et al. 2018). It is imperative to recognize that there is a need for institutional investments aimed at promoting patient safety issues. After all, to develop safe health systems, it is necessary to include care and management professionals, considering the imperative that all are responsible for patient's safety. Management should provide the necessary resources and structure to promote safety and consider it a priority over the financial and operational goals of the institution, corroborating the construction of a positive safety culture in the institution (TOMAZONI, et al. 2017). In this context, Lage and Alves (2016) corroborate that valorization and recognition as sources of motivation are also responsible for providing space and incentive to the worker, since they can imply personal and professional growth. The importance of professional recognition of the nurse influences the valuation of the profession in its varied dimensions, as well as in the professional performance. While negative implications, generated by the low visibility of nursing, can generate dissatisfaction and lack of motivation in the work context. Consequently, the invisibility and lack of recognition of the profession by the health team and patients can compromise the building of bonds and the effective delivery of safe care. The study shows the importance of highlighting and instigating reflection on the actions of oxygen therapy developed by

nursing and how these have contributed to patient safety. It was found that the actions regarding the use of oxygen therapy in the institution studied are distant from what is recommended as adequate, indicating the need to modify this condition. Non-standardization of practices aimed at patient safety has proved to be a determining factor in the discontinuity of care. There are gaps in the care process and consequently, it puts at risk the resolution of care, especially in the administration of oxygen therapy. Likewise, aspects such as operational, organizational, structural and human failures have proved to be obstacles to improving health security. The universe that involves patient safety is multifaceted, it depends on the synergy of other segments, and it is necessary to involve not only health professionals, but also health care providers generally, managers, patients and family members, in order to make the subjects more aware of his/her role of improving the quality of health services. The findings contribute to the construction of knowledge in health and, especially, to nursing, while it reinforces that a positive safety culture favors the better safe practices, through improvement in communication, teamwork and knowledge sharing. It is suggested to invest in studies that have a large research facility as it is known that larger intuitions commonly use effective protocols to guide the actions of the work process. In addition, it is advisable to invest in the professionals' knowledge about patient safety in the use of oxygen therapy, since educational interventions can prove effective in qualifying health services, when they meet reality and are reassessed in a continuous way aiming at their improvement. At the end of this study, it is important to mention that there are some limitations, due to the small number of participants, which is justified by the small number of nurses assigned to the institution studied. Furthermore, the combination of other methods of data collection may favor the elucidation of this phenomenon, looking for producing evidence-based knowledge to support professional practice.

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