# NURSING CARE IN THE PREVENTION OF ADHESIVE-RELATED SKIN INJURIES IN SURGICAL WOUNDS<sup>1</sup>

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#### **ABSTRACT**

Convergent Care Research aimed to describe the nursing care offered by nurses in the prevention of adhesive-related skin injury in surgical wounds and analyze the applicability of this care based on the International Consensus Statements for the Assessment, Prevention, and Treatment of Adhesive-Related Skin Injuries. Ten nurses who worked in the scene between July and October 2014, period in which the data collection occurred, participated in this research. The interviews were realized individually. Thematic content analysis was applied. The information collected about the care implemented by participants in the selection, application and removal of medical adhesives was problematized, showing a clear relation between the reports of participants and the recommendations of the Consensus. The described care is related to the application, removal and selection of inputs, and it is characterized as preventive care for adhesive-related skin injury in surgical wounds with impact on the quality of nursing care.

Keywords: Nursing. Wounds and Injuries. Nursing Care.

#### INTRODUCTION

Medical adhesive-related skin injuries are predictable and correspond to 15.5% of the friction lesions in hospitalized elderly. However, literature providing guidance on selection and adequate use of adhesives is still scarce, a fact that has impacts on the prevention and care of lesions<sup>(1)</sup>.

During the postoperative period, patients are exposed to traumatic insults caused by the fixation of dressings, drains, probes and catheters. Other factors such as fasting, water losses due to surgical management and use of antiseptics that contribute to dryness also increase the skin vulnerability. It is essential that the health team professionals reflect on this problem that generates discomfort, risks and increased institutional expenses. In this way, the promotion of space for reflection and discussion about the role of nursing in preventing damages caused by medical adhesives becomes relevant, creating possibilities for the transformation of this practice.

For the sake of ethical and safe care, it is important that these injuries be discussed in care settings, in accordance with the current provisions. In 2013, the Resolution of the Collegiate Board of Directors (RCBD) no 36<sup>(2)</sup> was published establishing

the rules for actions to promote patient safety and improve quality in health services. This resolution emphasizes that health institutions must create barriers for prevention, apply strategies and risk management actions during the use of materials and prevent of adverse events in health services<sup>(2)</sup>.

Considering the complications that adhesiverelated skin lesions on surgical wounds may cause for clients, the importance of the role of nurses in assisting these clients and in minimizing the risks of developing this type of lesion, the present study intends to respond to the following question: what are the nursing care measures provided by nurses for the prevention of adhesive-related skin lesions on surgical wounds?

This study aims to describe the nursing care provided by nurses for prevention of adhesive-related skin lesions on surgical wounds and also analyze the adequacy of this care to the proposal in the International Consensus Statements for the Assessment, Prevention, and Treatment of Adhesive-Related Skin Injuries.

### **METHODOLOGY**

This is a qualitative study in the modality called Convergent Care Research (CCR). The

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methodological approach incorporates the humanist commitment of the researcher to study and act in health care practice from the perspectives of professionals and/or users involved in the research context<sup>(3)</sup>.

The study scenario was a Pediatric Intensive Care Unit (PICU), specialized in emergency and surgery, located in Rio de Janeiro. In 2012, the institution was accredited as a Social Health Organization (SHO) by the State Department of Health. In the same year, it began to provide care for children and adolescents (aged under 1 year to 19 years) in the postoperative period of large surgeries and pediatric oncohematology.

Ten nurses who worked in the unit between July and October 2014, period of data collection, participated in the study. These nurses work on the on-call (assistance) and day-care (routine and managerial) schemes. All participants signed the Informed Consent Term.

Individual interviews used an instrument for sociocultural identification and a semi-structured script to guide the discussion. This stage was developed during the on-duty activities of each nurse or at the end of the work shift. They were carried out inside the round room or linen room, where it was possible to have an individual meeting with the participant, thus allowing the anonymity and freedom of the speech for the respondents to report their experiences and practices that generate impact on the object of investigation. Participants were identified by alphanumeric codes and the speeches were recorded on digital media (MP3), transcribed in full-length without abstraction of pauses, silences, intonations and other characteristics inherent in verbal discourse.

The researcher intervened to create opportunities for critical reflection on the role of the participants in the prevention of adhesive-related skin injuries, which resulted in the change and improvement of the nursing care provided to the patient.

The project was approved by the Research Ethics Committee (REC) of the Anna Nery School of Nursing, protocol no. CAA 44141715800005238, in accordance with Resolution 466/2012 of the National Health Council.

### RESULTS AND DISCUSSION

Nine out of 10 participants were female; nine were in the age range of 22 to 40 years; and the other participant was between 41 and 50 years old; six of

them reported working in other institutions.

It is noteworthy to observe other studies that corroborate these data, noting that nursing continues to be represented by an expressive number of female workers, who sometimes have a double or triple working journey, which has impacts on the professionals' quality of life and generates consequent lower productivity and quality of the assistance provided<sup>(4)</sup>.

The time between graduation and entry into the labor market is also interesting for analysis. Half (5) of participants had finished training between three and five years ago; three, between five and ten years ago; and two, more than ten years ago. The characteristics of nursing work itself expose professionals to wear due to the great demand for activities, requirements and tasks to be fulfilled. A study with 1,360 nursing workers about the relationship between work and illnesses showed that workers are exposed to various types of biological, physical, chemical, mechanical and psychic loads that generating wearing processes, including work accidents and illnesses<sup>(5)</sup>.

Regarding the time working in the sector, eight had been already working in the unit before reopening, with seven participants working in the sector for three to five years, two participants, for less than three years and one, for more than five years.

The time working in the sector is an important factor, especially regarding the immersion for the knowledge sharing and the nursing practices on the adhesive-related skin injuries, as well as the understanding of the contribution that this experience brings to the care provided to the client.

Regarding the academic titles of the pediatric ICU nurses, eight participants had attended post-graduate courses; in the Lato Sensu modality, four nurses had post-graduation in Neonatology, three in Intensive Therapy and one in Labor Nursing. Studies emphasize that postgraduate nurses contribute to the improvement of customer service and work organization. A research carried out with 90 Nursing Residency egress students showed that the specialization offers technical and scientific contribution to the performance in different fields and to the development of assistance, management, teaching and research activities with competence and quality(6).

Two out of 10 participants are part or have already been part of dressing or similar commissions. It should be emphasized that the absence of nurses in

these commissions has negative effects on the effective care and patient safety. In this logic, the participation of nurses is legitimized for the specialized care of cutaneous lesions when performing dressings, coordinating and supervising the nursing team in the prevention and care ofwounds<sup>(7)</sup>.

The institution where the study was developed has a commission of nurses involved in the prevention and care of skin integrity. The actions of the group involve more directly pressure ulcers, which it may be related to the fact that this aggravation has its own quality indicator.

CCR has as its central axis the convergence through the juxtaposition of the research and the practice of care, through research, discussion, minimization or resolution of problems with impact for professionals, clients and the community. Thus, the dialogue between the researcher and the participants began with the definition of the adhesive-related skin injuries; then, the nursing care for prevention of adhesive-related skin injuries in surgical dressings was approached; and, finally, the effective communication and notification of events. The analysis was triggered based on the speeches and aiming a movement of critical reflection with resignification and discovery of other practices.

### **Definition of adhesive-related injury**

The participants showed to have doubts about the definition of adhesive-related injuries. Some perceived the injury as the detachment and loss of the epidermis in close relation with the removal of the adhesive; others also considered allergic reactions.

Injuries caused by adhesives usually happen when the patient is using some type of fixation. Like a transparent film, a microporous tape, that makes a ... [pause] breaks a layer of skin. When it makes a hyperemia too! (D 006)

They are injuries in the skin caused by inappropriate use of adhesives. In fact, sometimes it is not even inappropriate, sometimes we use the adhesive without knowing that the child has allergy. You will only find out if you use it. (D 010)

The lesion may be caused by pulling out the adhesive; the lesion may be caused by an allergic process triggered by that material.  $(D\,003)$ 

It may not be so simple for nurses to differentiate cutaneous lesions during the clinical practice, and this may make it difficult to elaborate a concept. Based on their experiences and theoretical constructs, a conversation about the definition not mentioned by nurses was carried out at the meeting.

Thus, the reconstruction of the concept and description of adhesive-related injury took place, precisely as a traumatic wound resulting from friction or from a combination of friction and shear that causes the epidermis and the dermis to detach from each other or fully detach from the underlying structures. Friction lesions resulting from the use of adhesives are cited in the international literature as skin stripping, somewhat similar to scaling of the epidermis<sup>(1)</sup>.

In short, medical adhesive-related skin injuries are characterized by any cutaneous alteration that persists for at least thirty minutes after the adhesive removal. Besides mechanical trauma, it may be related to other cutaneous events such as dermatitis, maceration and folliculitis<sup>(8)</sup>.

# Nursing care for adhesive-related skin injury prevention: Challenges in the Choice of the adhesive tape

The nursing care mentioned for prevention of adhesive-related injuries consisted of daily skin examination, careful selection, avoidance of use of adhesives when possible, change of adhesive types, precautions in application and removal, fixation with tubular mesh and alternation between wide and narrow dressings for the reduction of perilesional skin contact with the irritant agent.

The recommendations show that the prevention of adhesive-related injuries involves the identification of patients at risk, daily evaluation of signs of injuries, such as pain and loss of epidermis, and adequate use of the tapes, either at the application or at removal<sup>(9)</sup>. Therefore, the superficial and isolated evaluations underestimate the clinical signs and consequently lead to an inadequate treatment to the specific situation.

Very often during data production, the speeches included a holistic look at the choice of adhesive tape, focusing on the child, the skin receiving the adhesive and the primary lesion that needs dressing:

- ...I always follow these 3 criteria associated: I look at the skin, I look at the extension of the area that is going receive the dressing and I look at the child... (D 003)
- I'm going to see the extent of it, because sometimes the area is also immense, I may have to use several films, glue one over the other, basically, to attach the

other end. This may cause an injury.... If the area is suppurating lotto much, I will use microporous tape, as it is usual in the sector. (D 007)

- Patient's age, patient's pathology. Because the dressings I use on Neo, in a preterm baby, is not the same I will use in pediatrics. (D 004)
- Skin! I usually check if there is already some hyperemia, if the skin is thin,iIf everything is normal, I usually use microporous tape. (D 006)

Among the aspects cited in the choice of adhesive, the most important are age, nutritional status, type of lesion, extent and characteristics of the tissue. In addition, skin changes caused by allergies to latex and other adhesive products were discussed in the participants' statements.

- I ask if the child has, if the family has idea wether he is allergic, because sometimes they know. So if the child is allergic, we try another alternative and do not put that coverage on the skin. (D 001)
- I try to clean, to do the cleaning that has to be done in the operative wound and I use another material that does not cause allergy in the patient. (D 002)

In accordance with the guidelines, skins susceptible to adhesive-related injuries should be carefully evaluated in color, texture, appearance and integrity, as well as an accurate description of the alterations identified while monitoring the evolution and prevention of possible complications should be done<sup>(8,10)</sup>. Furthermore, the history of allergic processes is a decisive factor in the choice of adhesive tape. In some cases, the client and the family discover the allergy at the time it occurs.

The participant D004 reported that the institution provides microporous tape and transparent film and she stressed the importance of knowing the products available at the time of choosing. Another participant noted that feedback on adhesive products is crucial to avoid purchasing inappropriate materials. The nurses also reported that the choice takes into account the type of surgery and the periodicity of dressing changes. In wounds that require a greater number of exchanges in 24 hours, they use the microporous tape and in other cases, the transparent film.

- It is very common here to use microporous tape in the postoperative period. And transparent film is more to wounds, wounds, how can I say this... In the case of ventriculoperitoneal shunting, we use transparent film; in patient who underwent transplantation, we use transparent film. (D004)
- Arthrodesis, in the surgical incision, in the incision, I, I

normally, in my judgment, I prefer to use microporous tape. Because, besides not adhering too much to the skin, it can in the first, here with us is 24, 72 hours at most. It gets very dirt. So, for removal, it's better than the adhesive tape. The adhesive dressing sticks very tight. So, it may cause some injury at the moment of removal. (D 005)

Transparent film is a cover made of semipermeable and non-absorbent polyurethane. It is adherent, malleable and allows the direct visualization of the lesion or ostium of catheter insertion while searching of phlogistic signs. However, it is not applicable to other bandages that require gauze in their coverage. If it is used for coverage on heavily exuding wounds, it will require more frequent changes and, therefore, more exposure to risk of injury by constant removal<sup>(10)</sup>.

Three participants raised concerns about the increase in hospital costs generated by the frequent exchange that results from the wrong choice of the adhesive product.

I've never seen a place to use as much transparent film as here! Usually, all surgical wounds are have clear film. The patient is not allergic to the microporous tape, but is using film. Do you guys know how much a transparent film costs?! (D 006)

- I see if it's necessary to use that film because the patient may have a wound with bloody discharge. In this case, in 24 hours I'm going to have to change It. Then, there is no much advantage of using the film, I'll rather use gauze and microporous tape. (D 002)

Knowledge about the variety of adhesive tapes, as well as their characteristics, helps the health professional in the choice of adhesive material. During the data production, the researcher showed other products such as the adhesive with plastic back and the tape with back of polyester fiber, which have the advantage of adapting to swollen areas without stressing the skin.

In the selection of adhesive tape, the nurse's evaluation is relevant for patient safety (allowing the device to remain in place or the dressing not to take off), comfort (tranquility for the patient during its use) and practicality (for the professional who is uses the material)<sup>(11)</sup>.

The information obtained here becomes increasingly important for the choice and appropriate handling of materials. They should be disseminated in other settings because they will be useful for surgical center professionals, especially surgeons who are the ones making the first application of adhesive

on the incision or exchange the dressing in specific cases.

### Nursing care in the application and removal of adhesives

In the triad of factors governing the prevention of adhesive-related injuries, the application stands out. In line with the recommendations of the International Consensus Statements for the Assessment, Prevention. and Treatment of Adhesive-Related Skin Injuries, participants stressed the importance of applying the adhesive with as little contact as possible to the skin. The maintenance of the skin clean, dry and free from residues, wrinkles or blisters were the primordial aspects for the ideal adhesiveness. Protective films allow the formation of a barrier and may be employed in places with prior irritation. An indispensable care measure is to adjust the tape surface without stretching it, applying a firm yet soft pressure<sup>(11)</sup>. However, this care is not yet recognized by all professionals in the sector.

On the application of dressings in hairy areas, one participant (D 001) reported that she used the scalpel blade to do the tricotomy. However, these blades are not recommended for the tonsure of hairs as they can break the integrity of the skin and consequently increase the risk of infections. At that moment, the dialogue with the researcher contributed to the change of attitude of the participant. When she perceived the risk to patient safety, she said to be willing to use scissors or shavers available at the institution.

The proper technique for tape removal has an impact on the incidence of adhesive-related friction injuries. The International Consensus states that skin lesion and pain experience may be precipitated at the time of removal. These aspects are associated with multifactorial issues such as the characteristics of the adhesive tape, the customer and the area covered by the dressing.

In the study, the practices for removal reported by nurses were limited to microporous tape and transparent film, inputs available in the industry. All participants stated that they knew their proper technique for removal of film and agreed that improper removal puts the skin integrity and the patient safety at risk.

According to the reports, the use of solutions to aid the removal is not standardized in the institution, but 70% alcohol, 0.9% saline solution and Essential Fatty Acid (EFA) oil are used for this purpose. However, the use of alcohol or solvents is not recommended for removal, as they promote removal of the lipid mantle and alter the pH of the skin. This process results in direct adhesion to unprotected skin, which may potentiate the onset of lesions and allergic reactions<sup>(1,8)</sup>.

On this issue, one of the participants exposed his experience with EFA oil ear cleaner, used in another institution where he works. He suggested that the institution's pharmacy should make this standardization, so that both the client and the institution would be benefited.

The team is unanimous in stating that the removal in the opposite direction of the hair precipitates the pain and increases the occurrence of folliculitis. Tape removal at a perpendicular or vertical angle increases the pressure between the dermis and the epidermis, contributing to the potentiation of harmful effects. On the other hand, by keeping the tape in a parallel position followed by adjacent skin attachment, it is possible to maintain the pressure on the tape itself and, consequently, to have positive results in the prevention of adhesive-related injuries.

### Effective communication and reporting of adhesive-related skin injuries

Among the international goals for Patient Safety, effective communication is paramount to avoid errors and near misses. The World Health Organization estimates that care-related errors affect thousands of people every year, but about 50-60% of these events are preventable<sup>(12)</sup>.

Participants recognized adhesive-related skin injury as a detrimental event to patient safety, highlighting the risk of infection.

- So ... It is a bad thing that we are causing the patient, a harm that we are doing to the patient. A trauma of a wound and such and such, no matter how closed it may be. It's a entry door ... the patient supposes to enter the hospital, go out well, not with a sequel, with an injury. (D 002)

Relevant information to the clinical picture of the patient must be shared and recorded by all health professionals. In their speeches, the participants had different stances on the transfer of information about the lesions caused by adhesives, either in the evolutions, change of duty, or discussion in the multiprofessional round.

- I usually pass the information [to the next professional on duty]! But not all professionals do that. (D 001)  $\,$ 

- Unfortunately, it is not [evolved in medical records]! For example, this girl here on the side, she has a adhesive-caused injury. (D 005)
- I do not report, for diplomacy. Because 99% of the injuries I witness are, for me, very noticeable, as it is by iatrogenic harm. If everyone had already a professional maturity, such event would be evolved. Then the colleague goes to see, the colleague goes to see the problem and from there, from the focus of the problem, you direct the prevention, treatment guideline. Thus, we do not evolve the injury! We do it verbally, diplomatically! (D 003)

The analysis of the speeches showed that the communication about the adhesive-related skin lesions had gaps and the information was not completely registered. The scenario does not have registry control of these lesions, nor does it standardize the transfer of this information. This fact has a direct impact on the perception that health professionals have about the incidence of the phenomenon in their field of work<sup>(11)</sup>.

One participant was emphatic in stating that he is unaware of the incidence rates that define the actual situation of medical adhesive-related injuries.

-I have no idea about the rate of injuries caused by adhesives! (D007)

Although they perceive the notifications as a form of exposure, the participants perceive their importance and emphasize that the data generated may lead to a reflection on the dissemination to improve nursing care.

The preventive measures and behaviors used in the treatment of injuries should be rigorously recorded, since they reflect the ethical value and quality of nursing care that is described as obtaining greater benefits with lower costs and risks to patients<sup>(13)</sup>. In addition, they enable the continuity of care and the source of consultation. The scarce and inadequate record compromises the care provided and the image of the institution and the nursing team<sup>(14)</sup>.

In the light of the foregoing, notification makes it possible to maintain an effective means of communication. This movement facilitates the

exploration, discussion, estimation of rates and innovation in the assistance for elimination of these events through the planning of a safe work processes with a view to prevention<sup>(15,16)</sup>.

### FINAL CONSIDERATIONS

The descriptions provided by the participants about the care taken in the selection, application and removal of medical adhesives were problematized in the light of the Consensus Statements for the Assessment, Prevention and Treatment of Adhesive-Related Skin Injuries. In this process, it was clear the approximation of the speeches of participants with the aspects listed in this document.

The care described by the nurses who participated in the study are related to the application, removal and selection of the inputs, and represent a preventive care for adhesive-related skin injuries in surgical wounds with impact on the quality of nursing care.

As part of the assumption of expandability inherent in convergent care research, other themes were raised and problematized. Among the topics that emerged in data production, patient safety related to skin problems was highlighted. The professionals demonstrated empirical non-systematized knowledge of international and national security policies, although this theme was not an initial focus of discussion of the study.

Another emergent theme was the effective communication in the changes of professionals on duty, evolution or multiprofessional rounds. In this opportunity, the nurses recognized the importance of this action, but they assume that communication is not always effective or performed by all professionals.

The benefits of this study involve the institutional scope by the creation of routines, protocols, quality services and cost reduction. Furthermore, the participants were given opportunities to reflect and problematize their professional activities. Finally, for the health care user, the study added value to the principles of patient safety and to the prevention of adverse events.

# CUIDADOS DE ENFERMAGEM PARA A PREVENÇÃO DE LESÃO DE PELE POR ADESIVOS EM FERIDAS CIRÚRGICAS

#### RESUMO

Pesquisa convergente-assistencial que objetivou descrever os cuidados de enfermagem prestados pelo enfermeiro para prevenção de lesão de pele por adesivo em feridas cirúrgicas e analisar a adequação desses cuidados ao Consenso Internacional de Avaliação, Prevenção de Tratamento de Lesão por Adesivo. Participaram do estudo 10 enfermeiros que atuavam em uma Unidade de Terapia Intensiva Pediátrica. Os dados foram coletados entre julho e outubro de 2014, por meio de entrevistas individuais, e submetidos à análise de conteúdo temático. As informações coletadas sobre os cuidados

implementados pelos participantes na escolha, aplicação e remoção de adesivos médicos foram problematizados e ficou clara a aproximação das falas com as recomendações do documento. Os cuidados descritos relacionam-se à aplicação, remoção e seleção dos insumos, configurando-se como cuidados preventivos para lesão por adesivos em feridas cirúrgicas com impacto na qualidade da assistência de enfermagem.

Palavras-chave: Enfermagem. Ferimentos e Lesões. Cuidados de Enfermagem.

## CUIDADOS DE ENFERMERÍA PARA LA PREVENCIÓN DE LESIÓN DE PIEL POR ADHESIVOS EN HERIDAS QUIRÚRGICAS

#### **RESUMEN**

Investigación convergente-asistencial que tuvo el objetivo de describir los cuidados de enfermería prestados por el enfermero para la prevención de lesión de piel por adhesivo en heridas quirúrgicas y analizar la adecuación de estos cuidados al Consenso Internacional de Evaluación, Prevención de Tratamiento de Lesión por Adhesivo. Participaron del estudio 10 enfermeros que actuaban en una Unidad de Cuidados Intensivos Pediátrica. Los datos fueron recolectados entre julio y octubre de 2014, mediante entrevistas individuales y sometidos al análisis de contenido temático. Las informaciones recolectadas sobre los cuidados implementados por los participantes en la elección, aplicación y remoción de adhesivos médicos fueron problematizados y quedó clara la aproximación de los relatos con las recomendaciones del documento. Los cuidados descriptos se relacionan a la aplicación, remoción y selección de los insumos, y se configuran como cuidados preventivos para lesión por adhesivos en heridas quirúrgicas con impacto en la calidad de la asistencia de enfermería.

Palabras clave: Enfermería. Heridas y Lesiones. Cuidados de enfermería.

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