

Nursing Care in Healthcare-Associated Infections: A Scoping Review

Cuidado de enfermagem nas Infecções Relacionadas à Assistência à Saúde: Scoping review
Cuidado de enfermería en las Infecciones Relacionadas con la Asistencia Sanitaria: Scoping review

Larissa de Lima Ferreira¹

ORCID: 0000-0003-2567-2236

Lorena Mara Nóbrega de Azevedo¹

ORCID: 0000-0003-4674-856X

Pétala Tuani Candido de Oliveira Salvador¹

ORCID: 0000-0002-3208-6270

Soraya Helena Medeiros de Morais¹

ORCID: 0000-0001-6578-8116

Renilly de Melo Paiva^{II}

ORCID: 0000-0001-7902-0378

Viviane Euzébia Pereira Santos¹

ORCID: 0000-0001-8140-8320

¹ Universidade Federal do Rio Grande do Norte. Natal-RN, Brasil.

^{II} Universidade Potiguar. Natal-RN, Brasil.

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Corresponding Author:

Larissa de Lima Ferreira
E-mail: lariilf@gmail.com



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ABSTRACT

Objective: To identify and map nursing care to the adult patient with Healthcare-Associated Infections admitted to the Intensive Care Unit. **Method:** Scoping Review, conducted in January 2018, through the search of studies in national and international databases, journals, catalogs of theses and dissertations, and websites of Brazilian health institutions. We included full surveys published in the Portuguese, Spanish or English language; which had as object of study the researched subject, besides manuals and protocols. We analyzed the type of material, year, country, population, method, Level of Evidence, and nursing care. The final sample consisted of 33 publications. **Results:** Among the nursing care to the patient, hand hygiene was identified, general care in nursing procedures, use of protocols, effective communication and periodic training. **Conclusion:** Identifying patient care with infection was important in order to list methods and reorient nursing activities.

Descriptors: Intensive Care Units; Nursing; Healthcare-Associated Infections; Nursing Care; Patients.

RESUMO

Objetivo: Identificar e mapear os cuidados de enfermagem ao paciente adulto com Infecções Relacionadas à Assistência à Saúde internado em Unidade de Terapia Intensiva. **Método:** *Scoping Review*, realizado em janeiro de 2018, mediante busca de estudos em bases de dados, revistas, catálogos de teses e dissertações nacionais e internacionais, além de sites de instituições brasileiras de saúde. Incluem-se pesquisas publicadas na íntegra na língua portuguesa, espanhola ou inglesa; que tinham como objeto de estudo a temática investigada, além de manuais e protocolos. Analisou-se o tipo de material, ano, país, população, método, Nível de Evidência, e cuidados de enfermagem. A amostra final foi de 33 publicações. **Resultados:** Dentre os cuidados de enfermagem ao paciente, identificou-se a higienização das mãos, cuidados gerais nos procedimentos de enfermagem, utilização de protocolos, comunicação efetiva e treinamentos periódicos. **Conclusão:** Identificar os cuidados ao paciente com infecção foi importante para elencar métodos e reorientar as atividades da Enfermagem.

Descritores: Unidades de Terapia Intensiva; Enfermagem; Infecções Relacionadas à Assistência à Saúde; Cuidados de Enfermagem; Pacientes.

RESUMEN

Objetivo: Identificar y asignar los cuidados de enfermería al paciente adulto con Infecciones Relacionadas a la Asistencia a la Salud internado en Unidad de Terapia Intensiva. **Método:** *Scoping Review*, realizado en enero de 2018, mediante la búsqueda de estudios en bases de datos, revistas, catálogos de tesis y disertaciones nacionales e internacionales, además de sitios de instituciones brasileñas de salud. Esto incluye la investigación publicada en su totalidad en portugués, español o Inglés; que tenían como objeto de estudio la temática investigada, además de manuales y protocolos. Se analizó el tipo de material, año, país, población, método, Nivel de evidencia, y cuidados de enfermería. La muestra final fue de 33 publicaciones. **Resultados:** Entre los cuidados de enfermería al paciente, se identificó la higienización de las manos, cuidados generales en los procedimientos de enfermería, utilización de protocolos, comunicación efectiva y entrenamientos periódicos. **Conclusión:** Identificar los cuidados al paciente con infección fue importante para elencar métodos y reorientar las actividades de la Enfermería.

Descriptorios: Unidades de Terapia Intensiva; Enfermería; Infecciones Relacionadas con la Asistencia Sanitaria; Cuidados de Enfermería; Pacientes.

INTRODUÇÃO

The Intensive Care Unit (ICU) is intended for the care of severe patients, who are hemodynamically unstable, requiring constant monitoring and a greater number of invasive procedures⁽¹⁾.

In this way, it is characterized as a critical area of high technological complexity and with a high risk for the development of Healthcare-Associated Infections (HAIs), representing an average of 20% of all infections diagnosed in hospitalized patients⁽²⁾.

In ICU, HAIs are mainly associated with central venous catheters, urinary catheters, mechanical ventilation, prolonged hospitalization and the use of broad spectrum antimicrobials⁽¹⁾.

In this sense, HAIs endanger Patient Safety (PS) and constitute the most frequent Adverse Event (AE) in hospital institutions. With higher incidence, we highlight the Urinary Tract Infections (UTI), mechanical Ventilator-Associated Pneumonia (VAP) and Bloodstream Infections (BSI)⁽³⁾.

Given the severity of infections, cost implications, patient morbidity and mortality, HAIs are a worldwide concern. The initiatives to minimize them are increasing and, thus, to promote the promotion of PS and quality of care⁽⁴⁾.

Thus, knowing the recommendations for control and prevention of HAIs requires joint efforts of all the professionals involved in health care, with strategies that contemplate their various aspects⁽⁵⁾.

In the multiprofessional team, Nursing gains visibility, not only because it is the category with the largest number of workers, but because it remains at the patient's side for 24 hours, being present in all health services at different levels of care, besides performing bureaucratic functions, to control hospital infection and to act in teaching and research⁽⁶⁾.

A study carried out in 2015 observed that the development of HAIs, together with the present complexity of ICU inpatient care, can directly impact nursing care, in order to generate overload for the team. On the other hand, this work overload in ICUs may favor or predispose to the development of HAIs⁽⁷⁾.

Thus, it is essential to reduce the care risks in the nursing care process, since it has a direct impact on the PS and the quality of care. In addition, the reduction of risks and damages, besides the incorporation of good practices, favors the effectiveness of the care and its management in a safe way⁽⁸⁾.

Therefore, knowing what care is needed for the patient with infection is fundamental to design strategies and reordering the performance of Nursing work in order to minimize HAIs and their effects. Therefore, the present study has as a guiding question: What nursing care is performed on the adult patient with HAIs admitted to ICU?

OBJECTIVE

This study aims to identify and map nursing care to the adult patient with HAIs admitted to ICU.

METHOD

Scoping Review, elaborated according to the method recommended by the Joanna Briggs Institute, Reviewers Manual⁽⁹⁾, according to the theoretical framework proposed by Arksey and O'Malley⁽¹⁰⁾.

This type of research consists of an exploratory review, designed to map, in scientific production, relevant studies in a given area. Five steps were described: I. identification of the research question; II. Identification of relevant studies; III. Selection of studies; IV. Data analysis; V. Synthesis and presentation of data⁽⁹⁾.

In stage I, we established the research question, the purpose of the study and the descriptors were established according to the mnemonic combination PCC (P: Population - C: Concept - Nursing Care: C: Context - ICU). The following guiding question arose: What nursing care is performed on the adult patient with HAIs admitted to ICU?

The second step consisted of two subdivisions: The first corresponded to the selection of descriptors in studies published and available in the National Library of Medicine (PubMed) and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases, as indicated by the manual⁽⁹⁾. The descriptors indexed in the controlled vocabulary of Medical Subject Heading Terms (MeSH) were: Patients, Cross Infection, Nursing Care and Intensive Care Units.

In the first search, we used the cross-over: Patients AND Cross Infection AND Nursing Care AND Intensive Care Units to select the largest number of studies in PubMed and CINAHL, in order to identify the most used keywords in the published researches.

After selecting the descriptors and equivalences, the electronic capture of the studies in PubMed, CINAHL, Web of Science, SCOPUS and LILACS databases was performed. These were searched in the CAPES Journals Portal, from the identification through the Federated Academic Community (CAFe - *Comunidade Acadêmica Federada*), with the selection of the higher education institution *Universidade Federal do Rio Grande do Norte* (UFRN), as a way of standardizing the collection in these bases in January 2018.

We also searched for publication journals on the subject, so they were included in the search process: American Journal of Infection Control, Infection Control Hospital Epidemiology, and Journal of Hospital Infection.

We also used the gray literature. For dissertations and theses, we searched: Brazil - Theses and Dissertations Catalog of the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES - Coordination of Improvement of Higher Education Personnel); European Continent - Europe E-theses Portal (DART); United Kingdom - Electronic Theses Online Service (ETHOS); Portugal - *Repositório Científico de Acesso Aberto de Portugal* (RCAAP - Scientific Repository of Open Access of Portugal); South African National Theses and Dissertations (ETD Portal); Canada - Theses Canada.

For the selection of manuals and protocols, the websites of the following institutions were searched: *Agência Nacional de Vigilância Sanitária* (ANVISA - National Sanitary Surveillance Agency), *PROQUALIS*, *Rede Brasileira de Enfermagem e Segurança do Paciente* (REBRAENSP - Brazilian Network of Nursing and Patient Safety) and *Conselho Federal de Enfermagem* (COFEN - Federal Nursing Council).

In the search for the articles to compose the sample, we used the Boolean operators AND and OR, as described in the search strategy: [patients AND cross infection OR nosocomial infection] AND [nursing care OR nursing care OR nursing protocols OR evidence-based nursing OR nursing interventions OR practice guideline] AND [intensive care units OR critical care].

It should be emphasized that each data base has its search peculiarities, so it was necessary to adapt the strategy used, however we maintained the similarities in the descriptor combinations for all.

The refinement of the found articles was based on the eligibility criteria. Those of pre-established inclusion were: Research published in full in the Portuguese, Spanish or English language; who had as object of investigation the nursing care to the adult patient with HAIs. Also, manuals and protocols published by Brazilian regulatory agencies were included.

Time limit has not been set. Duplicate studies, editorials, reports of experience, theoretical dissertations, reflection studies, books and other reviews, as well as researches that did not present abstract and online text in full, were excluded.

In the third step, the articles were pre-selected from the reading of the titles and abstracts and the final sample was reached based on the reading of the articles in full, according to the flowchart in Figure 1.

The articles were analyzed (fourth stage) by using data collection indicators designated by: Type of material, year of publication, country of origin, population, study method, Level of Evidence, nursing care listed.

The fifth step consisted in the critical analysis of the data. The results were entered in spreadsheets available in the Microsoft Excel 2010® program and analyzed by descriptive statistics.

It should be noted that the study was carried out with data from the public domain, thus, ethical appreciation was not necessary.

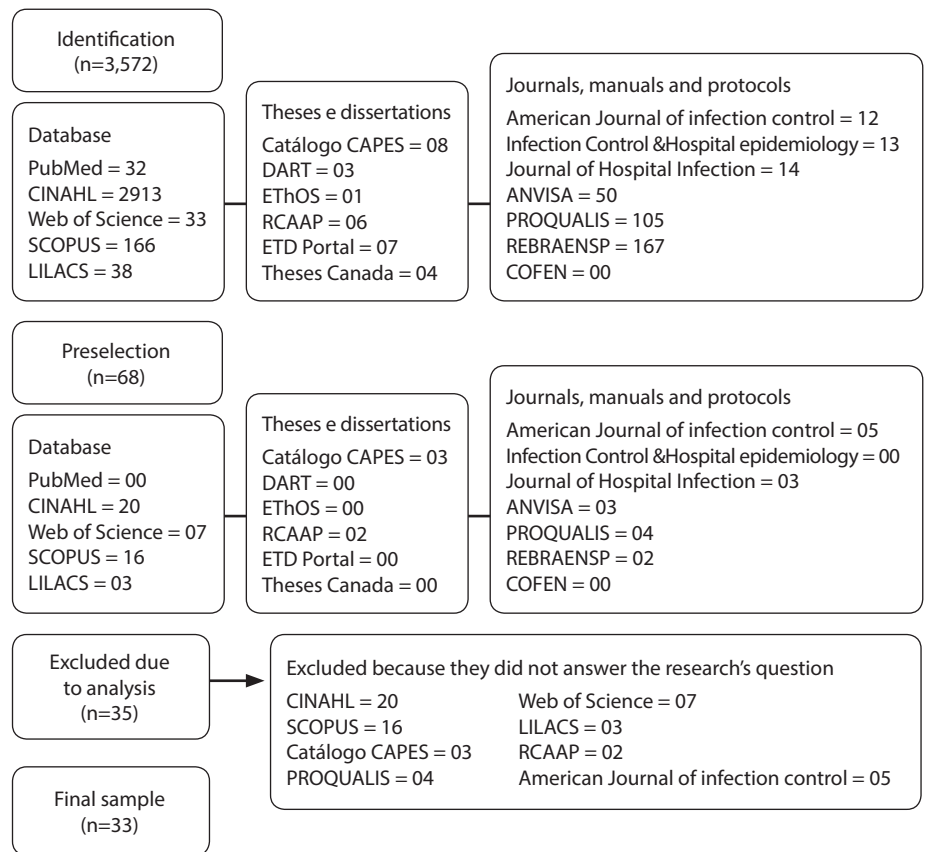
RESULTS

From the search in the data sources and according to the inclusion and exclusion criteria, we obtained a total of 33 (100%) publications. Among these, there are articles (25; 75.8%), manuals (5; 15.1%), dissertations (2; 6.0%) and protocols (1; 3.1%).

Among the articles and dissertations listed, Table 1 highlights the approaches, the methodological designs used and the Levels of Evidence identified.

Nursing professionals (16; 35.0%), nursing technicians (9; 19.7%) and patients (9; 19.7%) predominated in the articles and dissertations.

In relation to the year of publication, there is a highlight for 2017 (10; 30.3%), followed by 2010 (5; 15.4%), as shown in Figure 2. Regarding the country of origin, Brazil stood out (13; 39.5%) and soon after the United States of America (10; 30.3%).



Note - *National Library of Medicine (PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Catálogo de Teses e Dissertações da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES - Coordination of Improvement of Higher Education Personnel Theses and Dissertations Catalog); Europe E-theses Portal (DART); Eletronic Theses Online Service (ETHOS); Repositório Científico de Acesso Aberto de Portugal (RCAAP - Scientific Repository of Open Access of Portugal); South African National Theses and Dissertations (ETD Portal); Agência Nacional de Vigilância Sanitária (ANVISA - National Sanitary Surveillance Agency), Rede Brasileira de Enfermagem e Segurança do Paciente (REBRAENSP - Brazilian Network of Nursing and Patient Safety), Conselho Federal de Enfermagem (COFEN - Federal Nursing Council).

Figure 1 – Flowchart of the selection of studies that compose the research, Natal, Rio Grande do Norte state, Brazil, 2018

Table 1 – Methodological characterization of articles and dissertations, Natal, Rio Grande do Norte state, Brazil, 2018

Characterization	n	%
Methodological approach	27	100
Qualitative	19	70.3
Mixed	05	18.5
Quantitative	03	11.2
Methodological design	27	100
Cross-sectional	10	37.1
Descriptive	09	33.3
Experimental	02	07.4
Control	02	07.4
Cohort	02	07.4
Observational	01	03.7
Explanatory	01	03.7
Level of Evidence	27	100
I	01	03.0
II	02	06.1
III	16	48.5
IV	08	24.2
V	06	18.2

In all of the publications, the most evident care was related to the prevention of HAIs (30; 90.9%) and to their control (3; 9.1%). Chart 1 presents the synthesis of nursing care in the care of patients with HAIs, observed in the materials analyzed, in addition to the Level of Evidence of each study that pointed out the care.

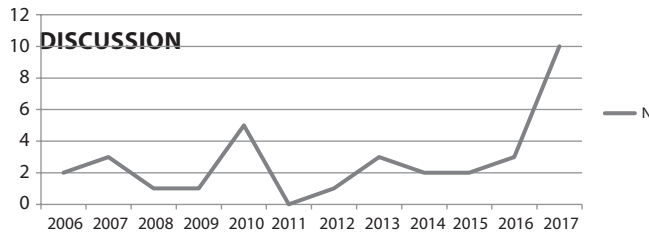


Figure 2 – Year of publication of the materials listed in absolute numbers, Natal, Rio Grande do Norte state, Brazil, 2018 (N=27)

There was a highlight in the productions on the subject in the year 2017, this is due – among other factors – the publication of the results of the first version of the *Programa Nacional de Prevenção e Controle de Infecções Relacionadas à Assistência à Saúde* (PNPCIRAS - National Program for Prevention and Control of Healthcare-Associated Infections), which covered the triennium 2013-2015⁽¹⁰⁾, since most of the materials were produced in Brazil.

Thus, several themes have been discussed in this Program, such as the global and national situation of HAIs and new goals and objectives of PNPCIRAS (five years 2016-2020)⁽¹¹⁾.

In Brazil, since 1997, a hospital infection control program has been mandatory in all hospitals⁽¹²⁾. However, it was not until 2001 that the diagnosis of HAI control in Brazil began⁽¹³⁾.

Thus, we observed in the literature that the presentation of nursing care strategies related to the prevention and control of

Chart 1 – Nursing care for patients with Healthcare-Associated Infections, Natal, Rio Grande do Norte state, Brazil, 2018

Description of nursing care		Level of Evidence
Hands Hygiene		III(A1, A2, A3, A4, A5, A6), III(A7, A8), IV(A9, A10, A11), II(A12), V(A13, A14, A15)
VAP Care	Oral hygiene	III(A5, A16), IV(A10, A19), V(A15)
	Bed head raised at an angle of 30 ° to 45 ° from the horizontal	III(A5, A16), IV(A10), V(A15)
	Care in monitoring endotracheal cuff pressure	IV(A10), V(A15)
CVC Care	CVC maintenance	III(A20, A21, A12), IV(A23), V(A15, A24)
	Dressing care	III(A6); IV(A23), V(A15)
	Medication preparation and administration care	III(A4, A6); IV(A23); V(A24, A15)
DVP Care	Inserting the catheters only with appropriate indications and keeping them only the necessary time	III(A25, A26), V(A15)
	Use aseptic technique on insertion	III(A25, A26), V(A15)
	Proper catheter attachment	III(A25, A26), V(A15)
	Maintenance of the urine collector below the bladder level	III(A26); V(A15)
	Maintenance of urine collector drainage every 8 hours or up to 50% of urine collector	III(A26); V(A15)
	Perform routine hygiene of the meatus and whenever necessary	V(A15)
SSI Care	Care of wound dressings	III(A27)
	Maximum precautions for sterile barriers	III(A27)
	Chlorhexidine skin antiseptics	III(A27)
	Performing a trichotomy before the surgical procedure	III(A27)
	Using the Surgical Safety Checklist	V(A14, A15)
Care in the dietary probe administration		IV(A10)
Use of chlorhexidine-impregnated towels to reduce cross-transmission and colonization by multi-resistant organisms		III(A28, A29)
Application of the "contact isolation" protocol		III(A6, A30), IV(A10)
Communication between nurses and doctors		III(A31, A32)
Use of current and best nursing practices, promote and sustain a climate of safety and high quality care		I(A12); V(A32); IV(A22)
Protocols use		III(A16, A6); IV(A17, A11, A19, A22); I(A12); V(A13, A18, A15)
Infection control training		I(A12); V(A14, A15); IV(A17)

Note - *Mechanically Ventilated Pneumonia (VAP), Central Venous Catheter (CVC), Delay Vesical Probe (DVP), Surgical Site Infection (SSI); ** Codes and references of the articles are presented in appendix.

HAIs involve several segments, from quality management and resources to guarantee work structure, such as hygiene care, health professionals and staff⁽¹⁴⁾.

Therefore, measures for the prevention of HAIs should be adopted in health care establishments and by all professionals, since with knowledge and adherence of programs for the prevention and control of HAIs it is possible to reduce them by up to 70%⁽¹⁵⁾.

According to the European Center for Disease Prevention and Control (ECDC), approximately 20% to 30% of HAIs are considered preventable through intensive hygiene and control programs⁽¹⁶⁾.

From the results, the importance of the nursing professionals' role in the prevention and control of HAIs is elucidated, as corroborated by a study⁽¹⁷⁾ that approached nursing practice in the prevention and control of Primary Bloodstream Infection (PBSI) related to the CVC.

Hand Hygiene (HH) is the main care in the prevention of HAIs and studies have found that this universal precaution is the cheapest and most effective. However, it is not simple, as it is inherent to the commitment of all involved^(14,18).

To this end, the health services must have alcoholic preparation for antiseptic hand rubs at the service and treatment points, with a visible and easily accessible place, in order to avoid having to leave the place of assistance and treatment to hygienize the hands⁽¹⁹⁾.

Regarding the care for VAP identified, the PNPCIRAS (2016-2020) designates that VAP prevention protocols include, minimally, guidelines to keep patients with headshades elevated between 30 and 45°, to evaluate daily the sedation and to diminish whenever possible, and the performance of oral hygiene with antiseptics⁽¹¹⁾. In the ANVISA prevention manual, we add the item to routinely subglottic secretion⁽³⁾.

One study⁽²⁰⁾ presented the use of bundles instead of isolated prevention measures. With respect to the VAP, in addition to those defined by the PNPCIRAS, it was recommended that mechanical ventilator circuits be performed (periodic replacement of the ventilator circuit, avoid condensation of water in the circuit and daily evaluation of the possibility of extubation), aspiration of the secretion only when necessary, cuff pressure checking (measured every four hours and kept inflated with an ideal pressure of 20 to 30 cmH₂O) and HH⁽²⁰⁾.

Already in a study carried out in a ICU in Recife, the VAP bundle, apart from the items mentioned above, was composed of prophylaxis of Deep Vein Thrombosis (DVT) and prophylaxis of peptic ulcer⁽²¹⁾, measured without evidence to prevent VAP⁽³⁾.

The ANVISA protocol suggests as intervention the head elevation of 30-45°, its inclusion in the nursing control sheet and promotion of encouragement to clinical notification, if the bed is not apparently in the proper position⁽³⁾.

Regarding the practice of safe insertion of CVC, according to PNPCIRAS (2016-2020), HH should be performed using the maximum barrier precautions for catheter insertion (use of a cap, mask, sterile apron and gloves, and large sterile fields covering every area to be punctured), prepare the skin with 0.5% chlorhexidine alcoholic solution or PVPI, select the CVC insertion site, using the subclavian vein as the preferred site for non-tunneled CVC⁽¹¹⁾.

It was seen that the recommendations for insertion of CVC are summarized in actions taken and observed by the team before, during and after insertion of the catheter, to ensure its

maintenance, from the insertion to the daily catheter revision and permanent education of the multidisciplinary team⁽²²⁾.

It should be emphasized that nursing care also needs to encompass the preparation and administration of medications by CVC, so it is essential to proceed with the disinfection of infusion routes before their use⁽²²⁾.

Therefore, alcoholic clorexidine or alcohol 70% should be applied, local inspection and dressing changes should be preferred to transparent dressings, replacing the equipment at intervals of no more than 96 hours (except blood products or lipid products - requiring of a smaller interval) and, finally, to carry out the regular surveillance for BSI associated with the central lines⁽²²⁾.

Furthermore, there is indication of insertion of the catheter guided by ultrasonography, since complications associated with its placement include vessel lesions, resulting in hematomas, pneumothorax and hemothorax⁽²²⁾. Thus, even if Nursing does not perform such procedure, you must be aware of the main adverse situations that may result from the technique.

There is also a need for care with peripheral insertion catheters, the ANVISA manual⁽³⁾ recommends HH and defines that the use of gloves does not replace the need for hand hygiene.

Lower limb veins are not recommended for puncture, unless absolutely necessary, because of the risk of embolisms and thrombophlebitis. We recommend to avoid flexion region, limbs affected by injuries such as open sores, infections in the extremities, veins already compromised, areas with previous infiltration and/or extravasation, areas with other planned procedures⁽³⁾.

We suggest to carry out friction of the skin with alcohol-based solution, they are chlorhexidine gluconate, with concentration higher than 0.5%, 10% alcoholic povidone-iodine (PVPI) or 70%⁽³⁾.

We emphasize that the application time of chlorhexidine is 30 seconds, while that of PVPI is 1.5 to 2.0 minutes. We indicate that the application of chlorhexidine is performed by means of back and forth movements and PVPI with circular movements (from the inside out), and wait for the spontaneous drying of the antiseptic before proceeding to puncture⁽³⁾.

We recommend to limit the maximum of two attempts of peripheral puncture by professional and, maximum, four, in total. Regarding stabilization and coverage, it has to be understood that any coverage for a peripheral catheter needs to be sterile, and may be semi-occlusive (gauze and sterile adhesive tape) or semipermeable transparent membrane⁽³⁾.

Regarding bladder catheterization, although it is considered a frequent invasive procedure, it is associated with complications that require the team's efforts to control it. Therefore, it is essential to provide safe, quality and cost-effective, evidence-based nursing care⁽²³⁾.

In addition, it is recommended that the sterile lubricating gel be used only with or without anesthetic (give preference to the use of an anesthetic in a patient with urethral sensitivity) and it is recommended to use a smaller caliber catheter to avoid urethral trauma⁽³⁾.

Regarding this procedure, the PNPCIRAS (2016-2020) defines that the protocol for prevention of UTI associated with DVP minimally includes guidelines for HH before and after insertion of the catheter and any manipulation of the system or site, definition of criteria for indications of urinary catheter use and guidelines for insertion, care and maintenance of the urinary catheter⁽¹¹⁾.

Regarding the basic practices for prevention, the ANVISA manual identifies the infrastructure for prevention, process surveillance, continuing education and training, correct handling of the catheter⁽³⁾.

This requires the routine hygiene of the meatus and, where necessary, keeping the collection bag below the level of the bladder, emptying the collection bag regularly using the individual collection container and avoid contact of the drainage tube with the collection container, the entire system when disconnection occurs, breakdown of aseptic technique or leakage⁽³⁾.

With regard to SSI, it is estimated that SSI can be avoided in up to 60% of cases, by applying the recommended guidance and prevention measures⁽¹⁾.

The ANVISA manual guides the use of antibiotic prophylaxis, trichotomy - perform only when necessary and do not use blades, blood glucose control in the preoperative and immediate post-operative period, maintenance of normothermia throughout the perioperative period, optimization of tissue oxygenation in peri and post-operation to use preparations containing alcohol in the preparation of the skin, use the WHO Surgical Safety Checklist (SFCL) to reduce the occurrence of harm to the patient, use plastic wound protectors for gastrointestinal and biliary tract surgeries, perform surveillance by actively seeking SSI and educating patients and family members about SSI prevention measures⁽³⁾.

With regard to bath and SSI, the patient needs to be advised to take a bath with soap and water before performing the surgical procedure (the night before or on the morning of surgery), except for some special cases in which the bath with antiseptics, as in large surgeries and implant surgeries⁽³⁾.

We emphasize the importance of oral hygiene. In cases where there is prediction of orotracheal intubation, perform oral hygiene with chlorhexidine 0.12%. Provide clean towels to the patient for the pre-operative bath and proceed to change the patient's clothes and bed or the transport bed after the bath⁽³⁾.

Also, according to the diagnostic criteria for HAIs published by ANVISA⁽¹⁾, the process indicators for the prevention of pre and intraoperative SSI are elective surgeries with preoperative time of less than 24 hours, trichotomy with shorter interval than two hours, trichotomy with trimmer or scissors, antibiotic prophylaxis performed up to one hour before the incision and duration of antibiotic prophylaxis, antisepsis of the operative field.

The basic purpose of a precaution system is to prevent the transmission of a microorganism from one patient to another, or to a health care provider. This prevention covers measures related to the transmission of the agents involved and contemplates three types: Standard, specific and empirical precaution⁽²⁴⁾.

Regarding the use of protocols exposed in the results, it is evidenced that these are implanted in the institution from own

documents about the evaluated item and the accomplishment of training directed to the health professionals with presentation of programming and presence list⁽¹¹⁾.

The protocol must have a maximum of three years of date of publication or revision and may be included in the content of general protocols of the health service. Thus, the use of protocol improves the safety and quality of care in the ICU, but requires the adherence and periodic training of the multidisciplinary team so that they can be considered quality indicators⁽¹¹⁾.

Regarding training, it is corroborated by another research⁽²³⁾, which presents as the main recommendation for HAIs-related care, the permanent education of the multiprofessional team.

We emphasize that the nurse, as a member of the health team, is responsible for the prevention and systematic control of nosocomial infection and of communicable diseases in general⁽²⁵⁾.

Therefore, the nurse can contribute, minimizing the fragility between education and the implementation of measures, through adherence and supervision, thus achieving a reduction in infection rates⁽²²⁾.

Study limitations

As a limitation of the research, it is important not to include legislation from other countries, only from Brazil. In addition, it is noted that some articles were excluded from the sample because they were not freely available in full.

Contributions for the sectors of Nursing, Health or Public Policy

Identifying the care inherent to the patient with infection is important to list methods and reorient the performance of Nursing work, in order to minimize HAIs and their consequences, since they have a direct impact on PS and quality of care, as well as cost repercussions, the morbidity and mortality of patients.

CONCLUSION

Nursing care for adult patients with HAIs hospitalized in ICU identified in this review were hand hygiene, care for the patient using mechanical ventilation, CVC, DVP, and those submitted to surgical procedures.

Also, attention was paid to the routine of care practice, such as the administration of diet by catheter, care related to the patient's ICU bath, interprofessional communication, best nursing practices, promoting safety and high quality care, the use of protocols and the conduction of training on infection control.

Therefore, we recommend that other studies of the same design be carried out in order to address other phases of the nursing process, such as nursing diagnoses, private nurse assignment.

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