OBJN
ONLINE BRAZILIAN JOURNAL OF NURSING
ISSN: 1676-4285

REVIEW PROTOCOL

Safe administration of medications by nursing professionals in the hospital environment: scoping review protocol

Administração segura de medicamentos pelos profissionais de enfermagem no ambiente hospitalar: protocolo de *scoping review*

La administración segura de medicamentos por los profesionales de enfermería en el ambiente hospitalario: protocolo de *scoping review*

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Submission: 06/22/2021
Approved: 10/27/2021

ABSTRACT

Objective: mapping strategies for safe drug administration by nursing professionals in the hospital environment. **Method:** scoping review conducted according to the Joanna Briggs Institute (JBI) methodology guided by the research question: What strategies for safe medication administration have been used by nursing professionals in the hospital context? The search will be carried out in six databases and in the gray literature, using the Rayyan software to manage the collection and selection of studies. The title and abstract of all identified studies will be evaluated, based on the established inclusion and exclusion criteria, by two reviewers independently and a third reviewer to resolve possible discrepancies. The data will be summarized in a descriptive way. A narrative summary will accompany the tabulated and mapped results and describe how the results relate to the objective and issue of the review. **Descriptors:** Hospital Medication Systems; Nursing; Patient Safety.

RESUMO

Objetivo: mapear estratégias para administração segura de medicamentos pelos profissionais de enfermagem no ambiente hospitalar. **Método:** *scoping review* conduzida de acordo com a metodologia do *Joanna Briggs Institute* (JBI) guiada pela questão de pesquisa: Quais estratégias para administração segura de medicamentos têm sido utilizadas pelos profissionais de enfermagem no contexto hospitalar? A busca será realizada em seis bases de dados e na literatura cinzenta, com a utilização do *software Rayyan* para gerenciamento da coleta e seleção de estudos. Será realizada a avaliação do título e do resumo de todos os estudos identificados, com base nos critérios de inclusão e exclusão estabelecidos, por dois revisores de forma independente e por um terceiro revisor para resolver possíveis divergências. Os dados serão sintetizados de forma descritiva. Um resumo narrativo acompanhará os resultados tabulados e mapeados e descreverá como os resultados se relacionam com o objetivo e a questão da revisão.
Descritores: Sistemas de Medicação no Hospital; Enfermagem; Segurança do Paciente.

RESUMEN

Objetivo: mapear estrategias para la administración segura de medicamentos por los profesionales de enfermería en el ambiente hospitalario. **Método:** *scoping review* realizada según la metodología del Instituto *Joanna Briggs* (JBI) guiada por la pregunta de investigación: ¿Qué estrategias para la administración segura de medicamentos han sido utilizadas por los profesionales de enfermería en el contexto hospitalario? La búsqueda se realizará en seis bases de datos y en la literatura grisácea, utilizando el *software Rayyan* para gestionar la recolección y selección de estudios. Se realizará la evaluación del título y del resumen de todos los estudios identificados, en base a los criterios de inclusión y exclusión establecidos, por dos revisores de forma independiente y un tercer revisor para resolver posibles discrepancias. Los datos se resumirán de forma descriptiva. Un resumen narrativo acompañará los resultados tabulados y mapeados y describirá cómo los resultados se relacionan con el objetivo y el tema de la revisión.
Descriptores: Los Sistemas de Medicación en el Hospital; Enfermería; Seguridad del Paciente.

https://doi.org/10.17665/1676_4285.2022.6550

INTRODUCTION

Patient safety is defined by the National Health Surveillance Agency as the reduction to an acceptable minimum of the risks of unnecessary harm associated with health care[1]. Within this context, medication error can be defined as an avoidable event induced by inappropriate medication use[2].

Throughout history, there is a record of professionals who contributed to patient safety, such as the English nurse Florence Nightingale, who distinguished herself by contributing to the reduction of mortality through hygiene improvements, contributing to a good quality of care provided to soldiers in the 18th century during the Crimean War[3].

In this scenario, it is important to understand the impact of the publication of the report To Err is Human: Building a Safer Health System Institute of Medicine of the United States of America (USA), published in 2000, alerting society about adverse events in hospital institutions, in addition to presenting epidemiological studies that estimated that 44,000 to 98,000 deaths occur annually in the country due to errors in health care[4]. In this study, the Theory of Human Error or "Swiss Cheese Theory" by James Reason was also used as a reference, offering understanding and adequate treatment of occurrences, avoiding blaming only the professional, indicating the complete analysis of an entire organizational system as more appropriate. These perceptions are fundamental for understanding how health care is conducted from the perspective of nursing, considering the knowledge and experiences of these professionals in the health care network[5].

From the nurses' point of view, heavy workload, large numbers of critically ill patients, damaged and illegible medical prescriptions, low ratio of nurses to patients, and environmental conditions that lead to distraction have the greatest impact on medication errors in nursing. They also consider that the most important way of preventing and controlling medication errors is to reduce work pressure and increase the number of employees in proportion to the number of patients[6].

As previously mentioned, the impact that this issue has on the health system is notorious, as it was noticed that the results indicated a large number of preventable deaths per year and generated discussions due to the need and urgency of action in order to avoid these errors.

Alarming data regarding health care led to the creation of an ordinance in 2013 in the national context. During the 2000s, the Brazilian scenario showed adverse events in which the incidence was 7.6%, with the proportion of avoidable adverse events being 66%, so it was noticeable the need to implement policies that would stir the sector, thus, health institutions would become safer places for the population[7].

On April 1, 2013, Ordinance No. 529 was published by the Ministry of Health and the National Health Surveillance Agency, with the institution of the National Patient Safety Program (PNSP), with the proposition of priority strategies to consolidate safe care in Brazilian health services[8].

In the meantime of the legal documents to support the implementation of such Program, the Ministry of Health proposed the Safety Protocol in the prescription, use and administration of medicines, which establishes guidelines for safe practices throughout the drug therapy process. Its importance refers to the fact that, in health care, failures in the medication process occur frequently and extrapolate situations that involve only concentrated and high-alert drugs[8].

Regarding the legal framework, in addition to the protocols, the Federal Council of Nursing developed a code of ethics for better care. Article 12 includes that it is the responsibility of the professional to ensure the person, family and community Nursing care free of damages resulting from malpractice, negligence or recklessness[9]. Due to the severity of these occurrences, it is necessary to analyze the technical practices and skills to perform certain actions, as well as the environment conditions so that incidents do not occur.

It is understood, therefore, that the medication and care process within a health institution is complex and prone to errors, involving the prescription, dispensing and administration of pharmacological agents. This process involves multidisciplinary action in its various phases; the participation of nursing professionals is primarily linked to direct care, therefore, they are responsible for the final process of medication administration, evidencing the chain of a possible error, commonly associated with themselves. Being the protagonists in this administration at the most varied levels of care complexity, the nursing team proves to be an important safety barrier towards safe care, with the objective of reducing risks, preventing and mitigating damages related to medication errors[10].

Thus, the safe administration of medications represents one of the responsibilities of routine, highly complex and essential nursing care. It is

https://doi.org/10.17665/1676_4285.2022.6550

among the potentially dangerous nursing tasks in hospitals due to the possibility of errors[11]. Therefore, promoting safe drug administration is an important indicator of health quality, contributing to patient safety and preventing incidents that result in adverse events.

While medication errors cannot always be avoided, organizations can prevent themselves by redesigning the robust system, helping employees make safe behavioral choices, and understanding why people make the choices they do. Medication errors can occur at any point in the medication use system, from prescribing to administering the medication itself. Thus, not only the nursing team has responsibility for the end of the process of administering the medication[12].

In the meantime, Total Quality Management (TQM) is necessary in the hospital environment, a management model that understands that, in order to be achieved, quality needs to be managed and, in this process, the participation of everyone who integrates the institution is essential, from the operational to the strategic level. In this model, the cultural aspect is fundamental, so that quality in health is understood as a strategic policy of the institution[13].

Therefore, this review will aim to map strategies for safe administration of medications by nursing professionals in the hospital environment.

METHOD

The scope review will be conducted according to the methodology of the "JBI manual for evidence synthesis"[14] from the Joanna Briggs Institute of August 2020, following the framework proposed by Peters et al.[15]. The protocol was prepared and registered in the Open Science Framework (OSF) (DOI: 10.17605/OSF.IO/DZ7A2).

Review question

What strategies for safe drug administration have been used by nursing professionals in the hospital context?

Inclusion criteria

Participants

The participants of this review will be nursing professionals, considering studies that include nursing professionals who work in the administration of medication in the hospital environment. It is understood by Nursing professional, according to Law n. 7,498/86, of June 25, 1986, which regulates the practice of Nursing and provides other measures, all those who hold a diploma or certificate verified by a recognized educational institution and registered with the Regional Council of Nursing in the area in which they work[16].

Concept

This review will consider studies that include the strategies used for safe administration of medications by nursing professionals in the hospital environment, conceptualizing it as a complex process that involves multiprofessional health teams in order to reduce the occurrence of possible adverse events, and that address the medication administration stage of the medication system[17].

Context

This review will only consider studies that were conducted in the hospital environment and that deal with safe practices only at the drug administration stage.

Types of sources

This scope review will consider scientific articles, theses, dissertations, manuals and protocols.

Search strategy

A preliminary search was carried out with the search for similar scoping reviews independently by three researchers in the following databases: OSF, Joanna Briggs Institute COnNECT+, Database of Abstracts of Reviews of Effects (DARE), The Cochrane Library and PROSPERO and no reviews with the same registered object were identified. Subsequently, an initial search was carried out in the PubMed portal and in the Virtual Health Library (VHL) database to identify synonyms of the search terms referring to the research theme, which was carried out by combining the Health Sciences Descriptors (DeCS) and the Medical Subject Headings (MeSH) identified for the PCC mnemonic of this review.

Therefore, the search strategy to be used in the databases was established (Figure 1). The review will consider all relevant published studies and will not be limited by time or language.

Information sources

Databases to be searched include: PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, Database on Nursing (BDENF), Virtual Health Library (VHL) and Google Scholar.

https://doi.org/10.17665/1676_4285.2022.6550

Database: VHL		
Date and time of search: 05/10/2021 - 20:00		
Mnemonic	**DeCS**	**Identified keywords**
P	Nursing Professionals	*Nursing, Female Nurses, Male Nurses*
C	No DeCS was identified for the concept	*Safe medication administration*
C	Hospitals	-
Database: Pubmed		
Date and time of search: 05/11/2021 – 18:00		
Mnemonic	**MESH**	**Identified keywords**
P	Nursing Professionals	*Nursing, Nurses*
C	No MESH was identified for the concept	*Safe medication administration, Drug administration, Medication systems, Medication safety*
C	*Hospitals*	*Hospital*
Database: Google Scholar		
Date and time of search: 05/21/2021 – 21:00		
Total studies found: 34,800		
Mnemonic	**DeCS**	**Identified keywords**
P	Nursing Professionals	Nursing
C	- No DeCS was identified for the concept	*Safe medication administration, Medication use, Medication systems, Hospital medication systems*
C	Hospitals	-
Defined Base Strategy		
DECS		
(Nursing OR male nurses OR female nurses) AND (Safe medication administration OR use of medication OR medication systems OR medication systems in the hospital) AND (Hospitals).		
MESH		
(Nursing OR nurses) AND (Safe medication administration OR drug administration OR medication systems OR medication safety) AND (Hospitals).		

Figure 1 - Search strategy based on exploratory research in the VHL, Pubmed and Google Scholar databases, Natal, RN, Brazil, 2021
Source: Prepared by the authors, 2021.

The search for unpublished literature will include: Catalog of CAPES Theses and Dissertations, Scientific Open Access Repository of Portugal (RCAAP), *Portal de Tesis Lationamericanas*, Electronic Theses Online Service (EThOS), DART-Europe E-Theses Portal, National ETD Portal, Theses Canada, World Cat Dissertations and Theses, PROQUALIS and the Ministry of Health Portal. A search strategy for publications of interest will be carried out in the references of the selected studies.

Selection of studies

Rayyan software will be used to manage the collection and selection of studies. The title and abstract of all identified studies will be evaluated, based on the established inclusion

Variable	Standardization
Type of study	If article, dissertation or thesis
Year of publication	Year the study was published
Country of origin	Country where the study was conducted
Author training	Rank of the first author, indicated in the study itself. For Brazilian authors, consult Curriculum Lattes
Strategies used for safe drug administration	Detail how nursing professionals have performed the safe administration of medications
Sector or type of hospital	Detail the research development environment
Professionals involved	Detail the research subjects participating in the research
Mentioned usage benefits	Describe the benefits of using the strategy cited by the study
Mentioned difficulties of use	Describe the difficulties in using the aforementioned strategy

Figure 2 - Indicators that will be extracted from the studies, Natal, RN, Brazil, 2021
Source: Prepared by the authors, 2021.

and exclusion criteria, which will be carried out by two reviewers independently and a third reviewer to resolve possible discrepancies. Editorials, experience reports and theoretical essays will be excluded.

Data extraction

Data will be extracted from studies included in the scoping review by three independent reviewers. Data will be extracted from a spreadsheet built in Microsoft Excel 2010 and will include details of population, concept, context, study methods and main findings relevant to the purpose of the review. An outline of the extraction worksheet is provided in Figure 2.

Data presentation

The data will be summarized in a descriptive way (n and %). A narrative summary will accompany the tabulated and mapped results and describe how the results relate to the objective and issue of the review. The research results will be reported in full in the final scoping review and presented according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) for the construction of the final article[18].

CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

FINANCIAL SUPPORT

Federal University of Rio Grande do Norte. Process number: PJ084-2021

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https://doi.org/10.17665/1676_4285.2022.6550

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