



FAILURES IN DRUG ADMINISTRATION IN HOSPITALIZED ADULT PATIENTS: SCOPE REVIEW PROTOCOL*

FALHAS NA ADMINISTRAÇÃO DE MEDICAMENTOS EM PACIENTES ADULTOS HOSPITALIZADOS: PROTOCOLO DE REVISÃO DE ESCOPO

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RESUMO

Objetivo: compreender os tipos, causas, consequências e medidas preventivas de falhas na administração medicamentosa em pacientes adultos hospitalizados. **Método:** revisão de escopo coordenada conforme método do *Joanna Briggs Institute* para revisões de escopo. Foi realizado um processo de busca em três etapas para adquirir fontes de evidências publicadas e não publicadas. Dois revisores realizaram a seleção das fontes de evidências de forma independente considerando estudos primários sem limitação temporal, geográfica ou linguística, que abordaram erros de medicação em pacientes adultos no contexto hospitalar. Esta revisão de escopo exclui fontes de evidências que relatem opiniões e/ou conceitos e não apresentem resultados originais relacionados com a realização de medicamentos.

Descritores: Erro de Medicação; Segurança do Paciente; Evento Adverso.

ABSTRACT

Objective: To understand the types, causes, consequences and preventive measures of failures in drug administration in hospitalized adult patients. **Method:** Scope review that will be coordinated according to Joanna Briggs Institute method for scope reviews. A three-step search process will be carried out to acquire published and unpublished sources of evidence. Two reviewers will select evidence sources independently considering primary studies without temporal, geographic or linguistic limitations, which addressed medication errors in adult patients in the hospital context. This review of scope will exclude sources of evidence that report opinions and/or concepts and do not present original results related to drug use.

Descriptors: Medication Error; Patient Safety; Adverse Event.

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INTRODUCTION

Patient Safety is a priority issue at a global level, being fundamental to the reduction of care failures and adverse events (AEs), as well as the promotion of safe practices in health services⁽¹⁾. The World Health Organization (WHO) has led this discussion, launching, in 2017, the 3rd world challenge, called "Medication without Harm", which calls on countries to adopt effective methodologies of quality and safety of services provided. This initiative aims to create a framework of actions aimed at patients, health professionals and Member States, with the aim of implementing safer systems and facilitating improvements in the practices of selection, prescription, preparation, dispensing, administration and monitoring of medicines. These strategies seek to reduce failures and empower patients, families and caregivers, encouraging their active participation in decisions related to treatment and care⁽²⁻³⁾.

In Brazil, the relevance of this theme is evidenced since 2011, when the Ministry of Health established resolutions that require the implementation of protocols and the creation of the Patient Safety Center (NSP). These guidelines aim to improve care, preparation of the document called Patient Safety Plan (PSP) containing the improvement actions to be developed and communication of AEs to the National Health Surveillance System (SNVS). Among the protocols, the use and administration of drugs is highlighted, which aims to stimulate the promotion of safe habits and routines in the use of drugs, contributing to avoid errors and increase the confidence of users in the health system. The implementation of these measures, both in global and national contexts, is essential to mitigate risks and improve clinical outcomes, strengthening the culture of safety in drug use⁽⁴⁻⁷⁾.

The use of medicines is the most common intervention in health practice for the treatment of diseases and the reduction of symptoms, regardless of age group or clinical context. However, errors related to this process represent a significant public health problem, constituting a challenge for the professionals involved in this process. These errors are considered avoidable and result from incorrect use of medications, and may cause damage to the patient's health. Adverse drug events include adverse drug reactions (ADR) and events resulting from medication errors (MS), both related to the work processes of the multiprofessional team. The costs associated with these errors are estimated to reach approximately 42 billion annually, as reported by the World Health Organization. These data highlight the urgent need to implement effective strategies for minimizing risks and adopting measures for safe care practice in drug administration^(2,8).

Among the main causes of drug administration errors are illegibility, names and packaging of similar drugs, and interruptions during preparation and/or administration of medicines⁽⁹⁾. In addition, other factors such as lack of training, little experience, lack of time, absence of guidelines, high stress and workload may be contributing factors to the problem and, consequently, to the occurrence of AEs⁽¹⁰⁾.

Understanding the characteristics of drug administration failures in hospitalized adult patients is an important step in creating programs that help reduce them. For this, it is essential to identify the causes of these failures before implementing appropriate interventions⁽¹¹⁾. However, there is still a gap in the scientific literature: there are no systematic or scoped reviews that clearly address these characteristics in

hospitalized adult patients.

A preliminary search carried out on August 20th, 2024 in MEDLINE/PubMed and LILACS/VHL (Virtual Health Library) databases revealed that there are no current or ongoing protocols or revisions focused on this topic. An initial search with the descriptors in Health Sciences (DeCS), Medical Subject Headings (MeSH) and Embase Subject Headings (Emtree) confirmed the absence of reviews on the subject, despite the existence of primary studies that prove the feasibility of the investigation. Therefore, the objective of this study is to understand the types, causes, consequences and preventive measures of failures in the drugs administration in hospitalized adult people, contributing to the understanding and mitigation of this critical problem in clinical practice.

METHOD

Scope review to be developed based on the recommendations of the *Joana Briggs* Institute (JBI) and in accordance with the Preferred Reporting Items for Systematic Reviews e Meta-analyses (PRISMA). The scope review was recorded on the *Open Science* Framework (OSF) platform, where it can be consulted in full (<https://osf.io/x6e2u/>), under DOI: 10.17605/OSF.IO/X6E2U.

Review question

What are the types, causes, consequences and preventive measures of errors in drug administration in hospitalized adult patients?

This issue seeks to map the available scientific evidence on the characteristics of these errors, considering the complexity and interventions necessary for its prevention, in order to guide safe practices and support patient safety policies in the hospital area.

Eligibility criteria

Participants

This review will consider sources of evidence from qualitative and/or quantitative studies on adult patients (18 to 64 years) in the hospital context, regardless of the sector or specialty. Sources of evidence that portray only the perspective or opinions of professionals and managers will be excluded.

Concept

Published and unpublished studies that explore the types, causes, consequences and preventive measures of failures in the drug administration, without temporal or linguistic limitations, will be included. Evidences that report definitions and/or opinions related to errors in the drug administration process will be excluded.

Context

This scope review will consider all sources of evidence that report studies conducted in the context of secondary health care, without limitation of global geographic location. Studies carried out outside the hospital environment,

such as hospitalization services (for example, outpatient care), will be excluded from this review.

Types of sources

This scope review will consider designs of qualitative, quantitative and mixed peer-reviewed methods. Gray literature, such as pre-publications, theses, dissertations, government reports and reports of professional organizations, will also be considered for inclusion. Abstracts of events, letters and editorials will be excluded. Thus, it is expected the return of varied materials and evidence, which will contribute to the construction of a diagnosis in relation to the proposed theme.

Search strategy

The initial research strategy was carried out with the help of a specialized librarian. The search process was conducted in three stages: initially, a preliminary search was delineated based on the components of the acronym PCC, associated with the mapping of terms in controlled vocabularies, such as DeCS, MeSH and Emtree. To combine the terms, Boolean operators were used: the OR operator to group synonyms and the AND operator to establish the intersection between the two

An initial search was carried out in the MEDLINE/PubMed and LILACS/VHL bases, aiming to identify relevant studies and analyze the existence of systematic reviews or related scope. Based on this preliminary search, terms extracted from titles, abstracts and descriptors/MeSH were incorporated. The final strategy was developed and applied, with specific adjustments, in the databases: LILACS, BDEF, IBECS, SES-SP, WPRIM, CUMED, MedCarib, PREPRINT-SciELO/Regional Portal of the VHL; CINAHL with full text, Academic Search Premier and Academic Source/EBSCO; EMBASE and SCOPUS/Elsevier; MEDLINE/PubMed; APA PsycInfo; Web of Science Core Collection and WOS Proquest/ Clarivate Analytics, in addition to Google Academic.

The initial collection was carried out on August 30th, 2023, and an update occurred on August 20th, 2024, with no limitations regarding the language or period of publication. The search strategies were adapted according to the specificities of each base, without application of filters, and are available in an open access repository (<https://osf.io/9bdgp/>), under DOI: 10.17605/OSF.IO/9BDGP.

Selection of evidences

The results obtained in the searches will be transferred to endnote v.X9 (Clarivate Analytics, PA, USA) software, where duplicates will be deleted. The screening of the studies will take place on the online platform Rayyan QCRI20⁽¹²⁾, starting with the titles and abstracts; subse-

quently, the material that remains will be reviewed in full, being confirmed and selected. Two reviewers, previously trained, will conduct the selection independently, on separate, non-contact devices

Initially, both reviewers will examine the titles and abstracts independently, in order to identify studies that meet the inclusion criteria. The selected studies will undergo a complete reading, excluding those who do not answer the review research question. In case of divergence in selection, disagreements will be determined by a third reviewer.

To ensure the quality and transparency of the process, the results will be arranged in a flowchart according to the PRISMA *Extension for Scoping Reviews* (PRISMA-ScR) model.

Data extraction

The data will be extracted from the sources of evidence included in the scope review by two reviewers, independently and verified by a third reviewer. A pilot data extraction test will be performed on 10% of the sources of evidence considered appropriate for inclusion in the review. An Excel spreadsheet, developed by the authors, will be used as a data extraction tool. The extracted data will be: authorship, year and country of publication, objectives, study design, population and sample, results. If appropriate, the authors of the studies or sources of evidences will be contacted twice to seek further clarification and provide any additional data.

Analysis and presentation of data

The relevant data from each source of evidence included will be extracted to identify types, causes, consequences and preventive measures of failures in drug administration. The data will be organized by details of the participants and the context and presented in tabular format, from the perspective of the classifications presented by the Ministry of Health and WHO. The results of the review will also be synthesized in bar charts and sector charts, if relevant, and a narrative summary will be provided to accompany the tables and charts, describing how the results relate to the research question.

*Paper extracted from the Master's Dissertation entitled "Checklist for the prevention of medication administration errors: Development and Validation" [Checklist de prevenção de falhas na administração de medicamentos: Desenvolvimento e Validação], presented to the Professional Master's Program at Federal Fluminense University, Niterói, RJ, Brazil.

CONFLICT OF INTERESTS

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

REFERENCES

1. World Health Organization. Medication Without Harm: WHO Global Patient Safety Challenge [Internet]. Geneva: WHO; 2017 [cited 2024 Nov 02]. Available from: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2017.6>
2. World Health Organization. Plano de ação global para a segurança do paciente 2021-2030: Em busca da eliminação dos danos evitáveis nos cuidados de

- saúde [Internet]. Genebra: WHO; 2021 [cited 2024 Nov 02]. Available from: <https://www.conass.org.br/wp-content/uploads/2022/11/document.pdf>
- World Health Organization. World Patient Safety Day 2023: Engaging Patients for Patient Safety [Internet]. Geneva: WHO; 2023 [cited 2024 Nov 02]. Available from: <https://www.who.int/news-room/events/detail/2023/09/17/default-calendar/world-patient-safety-day-2023--engaging-patients-for-patient-safety>
 - Conselho Regional de Enfermagem de São Paulo. Segurança do paciente: guia para a prática [Internet]. São Paulo: COREN-SP; 2022 [cited 2024 Nov 02]. Available from: <https://portal.coren-sp.gov.br/wp-content/uploads/2022/05/Seguranca-do-Paciente-WEB.pdf>
 - Agência Nacional de Vigilância Sanitária (BR). Resolução da Diretoria Colegiada - RDC nº 63 de 25 de novembro de 2011. Dispõe sobre os Requisitos de Boas Práticas de Funcionamento para os Serviços de Saúde [Internet]. Brasília: Ministério da Saúde; 2011 [cited 2024 Nov 02]. Available from: https://bvs.ms.saude.gov.br/bvs/saudelegis/anvisa/2011/rdc0063_25_11_2011.html
 - Agência Nacional de Vigilância Sanitária (BR). Resolução da Diretoria Colegiada - RDC nº 36 de 25 de julho de 2013. Institui ações para a segurança do paciente em serviços de saúde e dá outras providências [Internet]. Brasília: Ministério da Saúde; 2013 [cited 2024 Nov 02]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/anvisa/2013/rdc0036_25_07_2013.html
 - Agência Nacional de Vigilância Sanitária (BR). Portaria MS/GM nº 529 de 1º de abril de 2013. Institui o Programa Nacional de Segurança do Paciente (PNSP). [Internet]. Brasília: Ministério da Saúde; 2013 [cited 2024 Nov 02]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0529_01_04_2013.html
 - Vitorino M, Aguiar P, Sousa P. In-hospital adverse drug events: analysis of trend in Portuguese public hospitals. *Cad Saude Publica*. 2020;36(3):e00056519. <https://doi.org/10.1590/0102-311x00056519>
 - Brabcová I, Hajduchová H, Tóthová V, Chloubová I, Červený M, Prokešová R, et al. Reasons for medication administration errors, barriers to reporting them and the number of reported medication administration errors from the perspective of nurses: A cross-sectional survey. *Nurse Educ Pract*. 2023;70:103642. <https://doi.org/10.1016/j.nepr.2023.103642>
 - Gebrye DB, Wudu MA, Hailu MK. Magnitude and Predictors of Medication Administration Errors Among Nurses in Public Hospitals in Northeastern Ethiopia. *SAGE Open Nurs*. 2023;9:1-11. <https://doi.org/10.1177/23779608231201466>
 - Marufu TC, Bower R, Hendron E, Manning JC. Nursing interventions to reduce medication errors in paediatrics and neonates: Systematic review and meta-analysis. *J Pediatr Nurs*. 2022;62:e139-e147. <https://doi.org/10.1016/j.pedn.2021.08.024>
 - Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan—a web and mobile app for systematic reviews. *Syst Rev*. 2016;5:210. <https://doi.org/10.1186/s13643-016-0384-4>

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