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Antimicrobial management in primary health care: nurses' perceptions and actions

Gerenciamento de antimicrobianos na atenção primária à saúde: percepção e ações dos enfermeiros

Manejo de antimicrobianos en la atención primaria de salud: percepciones y acciones de las enfermeras.

RESUMO
Objetivos: identificar percepções e ações realizadas por enfermeiros da Atenção Primária à Saúde contempladas no Programa de Gerenciamento de Antimicrobianos. Método: estudo do tipo Survey, com 112 enfermeiros, recrutados por técnica bola de neve. Os dados foram coletados com questionário elaborado pelas autoras, via Google Forms®, entre outubro e novembro de 2020 e analisados por estatística descritiva. Resultados: 74,1% desconhecem a existência de gerenciamento de antimicrobianos nas unidades em que atuam; 92,9% acreditam que o enfermeiro deve estar envolvido nestas ações; 44,7% durante seus atendimentos investigam uso recente de antimicrobiano; 63,4% realizam levantamento do histórico de alergias e 59,8% dão continuidade a tratamentos com antimicrobianos após alta hospitalar. Conclusão: ações correspondentes à gestão de antimicrobianos estão incorporadas no dia a dia do enfermeiro da atenção primária, porém a percepção e a atuação efetiva do profissional ainda são incipientes, apontando a necessidade de intervenções educativas na temática.
DESCRITORES: Gestão de Antimicrobianos; Atenção Primária à Saúde; Enfermagem de Atenção Primária; Resistência Microbiana a Medicamentos; Controle de Infecções.

ABSTRACT
Objectives: to identify perceptions and actions performed by nurses in Primary Health Care included in the Antimicrobial Management Program. Method: Survey-type study, with 112 nurses, recruited using the snowball technique. Data were collected with a questionnaire prepared by the authors, via Google Forms®, between October and November 2020 and analyzed using descriptive statistics. Results: 74.1% are unaware of the existence of antimicrobial management in the units where they work; 92.9% believe that nurses should be involved in these actions; 44.7% during their consultations investigate recent use of antimicrobials; 63.4% carry out a survey of the history of allergies and 59.8% continue treatment with antimicrobials after hospital discharge. Conclusion: actions corresponding to the management of antimicrobials are incorporated into the daily life of primary care nurses, but the perception and effective performance of the professional are still incipient, pointing to the need for educational interventions on the subject.
DESCRIPTORS: Antimicrobial Stewardship; Primary Health Care; Primary Care Nursing; Drug Resistance, Microbial; Infection Control.

RESUMEN
Objetivos: identificar las percepciones y acciones realizadas por los enfermeros de Atención Primaria de Salud incluidos en el Programa de Manejo de Antimicrobianos. Método: Estudio tipo encuesta, con 112 enfermeros, reclutados mediante técnica de bola de nieve. Los datos fueron recolectados con un cuestionario elaborado por los autores, a través de Google Forms®, entre octubre y noviembre de 2020 y analizados mediante estadística descriptiva. Resultados: El 74,1% desconoce la existencia de manejo antimicrobiano en las unidades donde trabaja; El 92,9% cree que las enfermeras deben participar en estas acciones; 44,7% durante sus consultas investiga el uso reciente de antimicrobianos; El 63,4% realiza una encuesta de antecedentes de alergias y el 59,8% continúa tratamiento con antimicrobianos tras el alta hospitalaria. Conclusión: las acciones correspondientes al manejo de antimicrobianos están incorporadas en la vida diaria de los enfermeros de atención primaria, pero la percepción y desempeño efectivo del profesional son aún incipientes, apuntando a la necesidad de intervenciones educativas sobre el tema.
DESCRIPTORES: Programas de Optimización del Uso de los Antimicrobianos; Atención Primaria de Salud; Enfermería de Atención Primaria; Farmacorresistencia Microbiana; Control de Infecciones.

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INTRODUCTION

One of the new challenges faced by nurses in Primary Health Care (PHC) are Health Associated Infections (HAI) and the indiscriminate use of antimicrobials. [1-2]

HAIs are a serious public health problem and may be the result of care provision that is not based on good prevention and control practices. These cause an increase in morbidity and mortality rates for patients, in addition to raising the costs of healthcare. Actions to prevent such infections include the proper use of antimicrobials, in order to reduce the emergence and spread of multiresistant microorganisms. [2-4]

Microbial resistance (MR) is the competence of the microorganism to tolerate an antimicrobial agent, causing its healing or protection capacity to be limited. This process can occur naturally, but it is exacerbated by the inappropriate use of antimicrobials. [5]

Antimicrobials are among the most prescribed drugs by doctors; however, it can be stated that up to 50% of all antimicrobials are inappropriately prescribed. 6

HAIs are a serious public health problem and may be the result of care provision that is not based on good prevention and control practices.

Although the greatest burden of MR falls on hospital care, a study carried out in Rio de Janeiro, Brazil, found that most of the costs with antimicrobials came from primary care. [7]

Good practices that prevent the spread of multiresistant microorganisms, added to the proper use of antimicrobials, are actions that nurses can carry out in order to help fight microbial resistance and ensure patient safety. [2,8]

In this context, the Antimicrobial Management Program (AMP) was created in order to guide health professionals, including nurses, on how to play their best role in the face of microbial resistance. The program encompasses diagnosis, prescription, best practices, monitoring and education of the various professionals involved. [5,9]

Among the routine activities of PHC nurses, which include: nursing consultation; health education actions; ordering and collecting exams; user referral and counter-referral, unit planning and management; educational actions with the team, among others, [10,11] there are actions compatible with the objectives of an AMP. However, it is essential that nurses have specific

and collaborative roles in these programs.

Actions such as early identification of signs of infection, administration of antimicrobials, awareness of adverse effects, monitoring of laboratory results, care for wounds, verification of vital signs, search for absentees, among others, are actions intrinsic to the AMP. Many of these practices are already performed by PHC nurses, but without understanding that these actions are part of a larger context and can contribute to the reduction of microbial resistance. [12]

Other possible contributions for nurses in the AMP are the monitoring of prescribed antimicrobials, assistance so that the prescriptions are followed in a precise period, monitoring of exams so that the prescribed dose can be decreased or increased, among others. [13]

Because it is a topic of such relevance, and still incipient in the national literature, this study was carried out, which aimed to identify perceptions and actions of PHC nurses contemplated in their role in the AMP.

METHOD

This is a quantitative, descriptive, Survey-type research [14-16] with nurses working in PHC, recruited using the snowball technique, where a nurse is invited to participate in the study and is asked to send the invitation to a colleague to also participate in the research.[17].

Data collection took place in October and November 2020, with nurses working in PHC throughout Brazil, through a questionnaire prepared by the researchers. The questionnaire consisted of two parts, the first with 5 questions about sociodemographic data and the second part consisting of 21 objective questions that addressed aspects related to the perception and possible actions of PHC nurses regarding the AMP.

The questionnaire was made available in a Google Forms® form, sent to the so-called "seeds" participants, who after answering the instrument invited a friend to also do it and publish it on social media (Facebook®, Instagram® groups). The material was answered by 114 nurses, however only 112 met the criteria of being professionals working in PHC and, therefore, were included in the study. The results obtained were tabulated in an Excel® spreadsheet and analyzed using descriptive statistics, establishing the frequency of responses.

Data collection began after approval by the Research Ethics Committee (CEP) CAE 34447620.0.0000.5504) in accordance with the Guidelines and Regulatory Norms for Research involving human beings of the Resolution of the National Health Council (CNS) 466/12 and with the participants' awareness by reading and registering their acceptance in the Informed Consent Form, available on the Google Forms® form. [18]

RESULTS

Among the 112 participating nurses, 106 (94,6%) were women; 78 (69.7%) aged between 29-45 years and 98 (87,5%) working in the Southeast region. It was reported by 47 (42%) of the respondents time since training between 8-15 years and by 57 (50,9%) working in the PHC between 1-7 years. Regarding education, 47 (42%) declared to have specialization or residency in PHC.

They declared that they were not aware of the existence of AMP in the PHC of the municipality, which 83 (74,1%) respondents work.

Table 1 presents the opinion of the participants about what the objectives of an EMP would be.

When asked which professionals should be part of the AMP, 107 (95,5%) indicated doctors, 104 (92,9%) pharmacists, 104 (92,9%) nurses, 74 (66,1%) microbiologists, 73 (65,2%) dentists and in the option others, managers and biomedical doctors were appointed by three respondents, respectively. In this question, the participants could also indicate more than one alternative.

Table 2 shows the opinion of the participants about which actions are incumbent on nurses in the AMP.

Table 3 depicts the participants' opinions about situations that can interfere with the management of antimicrobials.

Next, activities provided for in the AMP were presented and how often the participant performed such actions in their daily lives were asked. It was identified that 79 (70,5%) respondents frequently or always receive guidance on the collection of material for cultural examinations; 40 (35,7%) perform the collection of material for culture and 59 (52,7%) check the results of cultures of patients using antimicrobials.

Regarding the frequency of user guidance, in use of antimicrobials, regarding the time 77 (68,8%); regarding the dose 74 (66,1%); regarding possible adverse effects 47 (41,9%) and regarding the duration of use of the antimicrobial, 73 (65,2%) do it frequently or always.

As for confirming whether the patient, using antimicrobials, attended the scheduled return visit, 45 (40,2%) do so frequently

Table 1: Opinion of study participants (n=112) about the objectives of an AMP. São Carlos, SP, Brazil, 2021.

Itens	N*(%)
Improve the proper indication of antimicrobials	82 (73,2)
Subsidize the best choice of antimicrobial	68 (60,7)
Prevent selection of resistant microorganisms	56 (50)
Assist health departments in the selection of antimicrobials to be purchased	42 (37,5)
Saving on buying antimicrobials	18 (16,1)
Interfering with medical autonomy	3 (2,7)

* participants could tick more than one alternative
Source: Research Data, 2021..

Table 2: Participants' opinions (n=112) about the actions that are incumbent on nurses in the AMP. São Carlos, SP, Brazil, 2021.

Itens	N*(%)
Patient monitoring on the use of the prescribed antimicrobial	96 (85,7)
Guidance on the use and effects of the antimicrobial in use	92 (82,1)
Collection of antimicrobial allergy history	90 (80,4)
Guidance on collecting material for culture and monitoring the results	90 (80,4)
Collection of the history of repeated use of the same antimicrobial	84 (75)
Detection and prevention of drug interactions related to antimicrobials	74 (66,1)
Dose adjustments, taking into account patient characteristics (eg: age, weight)	18 (16,1)
Antimicrobial dispensing	16 (14,3)
No action, as the nurse must not be involved in this program	2 (1,8)
Others	1 (0,9)

* participants could tick more than one alternative
Source: Research Data, 2021..

or always. On the other hand, the active search of patients missing antimicrobials 52 (46,4%) never or rarely does so.

Regarding the identification of the history of recent use of antimicrobials in the user's assessment, 50 (44,7%) and the history of allergies, 71 (63,4%) reported doing it frequently or always. Regarding the continuity of treatment with antimicrobials in the PHC unit, after hospital discharge, 67 (59,8%) of respondents do so with some frequency.

DISCUSSION

The novelty of this study in Brazil is highlighted, since after an extensive search in the databases, no Brazilian publications were found that encompass nursing and antimicrobial management in the PHC setting.

Although most respondents claim not to be aware of the existence of AMP in PHC, the responses obtained are consistent with the National Guideline for the Elaboration of a Program for the Management of Antimicrobial Use in Health Services [5] about what the objectives and professionals involved in this program would be.

The objectives of the AMP are based on the control of microbial resistance. For this, it encompasses several actions that seek to carry out the most adequate administration of antimicrobials in order to increase patient safety, reduce microbial resistance, reduce costs, contain waste and promote therapeutic success. [19-20]

Note that the AMP is based on actions that contribute to the reduction of microbial resistance. In the context of Primary Care, however, it is necessary to combine several strategies, such as education, quality guidelines, precise interventions and interprofessional work. [21]

In addition to the aforementioned strategies, good practices from a multidisciplinary team of physicians, pharmacists, microbiologists and nurses are necessary for the success of the AMP in PHC, a professional who, despite having a central role in the AMP, still recognizes little of its role in this team. [2,22]

PHC nurses are extremely important professionals for the AMP, as several skills performed every day can contribute to the reduction of microbial resistance, such as monitoring adverse effects, checking for drug allergies, measuring vital signs, early identification signs and symptoms of infection and inflammation, preparation and administration of the antimicrobial, duration of treatment, schedule control, patient evolution, identification of recent history of antimicrobial use, among others. Furthermore, as they are the professionals who have the greatest bond with patients and caregivers, they also act as educators. [8,22-24]

In addition to these attributions, the nurse's routine encompasses highly complex activities, with extensive administrative and care overload, as PHC is a broad scenario with a diversity of actions. [1]

Internationally, the nurse practitioner has greater autonomy in prescribing medication, including antimicrobials, and even so, their practices must be improved. [25] In Brazil, the nurse has the concession to prescribe medication, given protocols established in public health programs, however, with less autonomy than some international nurses. [26]

Amidst so many actions performed by nurses in PHC, their role in the AMP may not be clear, meaning that there is no articulation of practices between them. [23] Although isolated actions occur, it is notorious to state that they are not implemented in a structured way, and in a broader context of an AMP. [27]

Among the factors that interfere with the AMP, inadequate prescriptions, errors in dosage, time and time of use of the drug stand out. [28] However, these are essential elements to avoid microbial resistance. Therefore, mastering the technique and therapeutic optimization are part of the multimodal strategy. [22]

Continuity of treatment is an extremely important item so that the AMP objectives are met and microbial resistance diminished. The referral and counter-referral system must guarantee the continuity of the treatment until its completion. It is worth noting that the success of this strategy reaches one of the principles of the Unified Health System, comprehensiveness. [29]

Continuing education is an adequate strategy to promote constant updates on contents that contribute to the main objective of the AMP, that is, to increase professionals' perception about the safe use of antimicrobials. In addition to good

practices, continuing education sessions are expected to address topics that are essential for the program to function, such as drug interactions, resistance mechanisms and prevention. [2,30]

As a limitation, as this is a Survey-type study, published by social media, there is no control over the final audience that received the invitation and, therefore, the rates of acceptance in the study's participation cannot be estimated, nor if the data found are representative of the population of nurses working in PHC.

CONCLUSION

It is concluded that, although actions corresponding to the management of antimicrobials are already carried out by PHC nurses, the professional's perception and actions on the subject are still incipient. It is necessary to expand and understand the dimension of the objectives of the AMP and the role of nurses in this context, including in PHC.

Therefore, it is of great importance that, considering the magnitude of the problem of microbial resistance, nurses take ownership of this theme, both during graduation and in their professional practice, aiming at the full development of their role and aiming to participate in antimicrobial management in different healthcare scenarios.

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