

Implementation of advanced practice nursing in Brazilian Primary Health Care: methodological path

Implantação de práticas avançadas de enfermagem na Atenção Primária à Saúde brasileira: percurso metodológico
Implementación de prácticas avanzadas de enfermería en la Atención Primaria de Salud brasileña: camino metodológico

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ABSTRACT

Objectives: to describe the operationalization of the steps of a model proposed by the Pan American Health Organization for implementing advanced practice nursing in Primary Health Care services. **Methods:** a methodological study, with a qualitative approach, carried out in a local health system located in southern São Paulo. The first six steps of the model were followed: 1) improve health outcomes; 2) identify stakeholders; 3) determine unmet health needs; 4) identify priorities and goals to introduce advanced nursing practices in primary health care; 5) define advanced practice nursing in primary health care; 6) plan implementation strategies. **Results:** in each step, the objectives, methodological strategies and operationalization were described. **Final Considerations:** the model proved to be effective to support the process of development and implementation of advanced practice nursing in the local system studied.

Descriptors: Advanced Practice Nursing; Nurse Practitioners; Primary Health Care; Nursing Staff; Health Workforce.

RESUMO

Objetivos: descrever a operacionalização das etapas do modelo proposto pela Organização Pan-Americana da Saúde para a implantação de práticas avançadas de enfermagem em serviços da Atenção Primária à Saúde. **Métodos:** estudo metodológico, de abordagem qualitativa, realizado em um sistema local de saúde localizado na zona sul do município de São Paulo. Foram seguidas as seis primeiras etapas do modelo: 1) melhorar os resultados de saúde; 2) identificar os interessados; 3) determinar as necessidades de saúde não atendidas; 4) identificar prioridades e metas para introduzir as práticas avançadas de enfermagem na Atenção Primária à Saúde; 5) definir as práticas avançadas de enfermagem em cuidados primários de saúde; 6) planejar as estratégias de implementação. **Resultados:** em cada etapa, foram descritas os objetivos, as estratégias metodológicas e a operacionalização. **Considerações Finais:** o modelo mostrou-se eficaz para apoiar o processo de desenvolvimento e implantação da prática avançada de enfermagem no sistema local estudado.

Descritores: Prática Avançada de Enfermagem; Profissionais de Enfermagem; Atenção Primária à Saúde; Recursos Humanos de Enfermagem; Mão de Obra em Saúde.

RESUMEN

Objetivos: describir la operacionalización de las etapas del modelo propuesto por la Organización Panamericana de la Salud para la implementación de prácticas avanzadas de enfermería en los servicios de Atención Primaria de Salud. **Métodos:** estudio metodológico, con enfoque cualitativo, realizado en un sistema local de salud ubicado en el sur de la ciudad de São Paulo. Se siguieron los primeros seis pasos del modelo: 1) mejorar los resultados de salud; 2) identificar a las partes interesadas; 3) determinar las necesidades de salud insatisfechas; 4) identificar prioridades y objetivos para introducir prácticas avanzadas de enfermería en la Atención Primaria de Salud; 5) definir prácticas avanzadas de enfermería en la atención primaria de salud; 6) estrategias de implementación del plan. **Resultados:** en cada etapa se describieron objetivos, estrategias metodológicas y operacionalización. **Consideraciones Finales:** el modelo demostró ser efectivo para apoyar el proceso de desarrollo e implementación de la práctica avanzada de enfermería en el sistema local estudiado.

Descriptor: Enfermería de Práctica Avanzada; Enfermeras Practicantes; Atención Primaria de Salud; Personal de Enfermería; Fuerza Laboral en Salud.

INTRODUCTION

Advanced Practice Nursing (APN) is recognized worldwide, however, it does not have a single definition. APN is an “umbrella” term that encompasses the activities performed by generalist nurses who have undergone advanced training at the postgraduate level and use in-depth knowledge to make complex clinical decisions, seeking to meet the health needs of individuals, families and communities⁽¹⁾.

The International Council of Nursing (CIE) defines an advanced practice nurse (APNu) as “a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice”, whose characteristics are shaped by the context or country in which it is accredited for practice. Master level is recommended⁽²⁾.

The first APN experiences focused on Canada and the United States of America. More recently, its expansion has been observed in different countries⁽³⁻⁵⁾. Initially, APN was used as a response to the problems of fixing the workforce in remote and rural areas, but today it has been used mainly to expand access to health services and address care gaps in health care networks^(3,6).

The results obtained from international experiences reveal the complexity of a process of composition, development, implementation and evaluation of APN in different local health systems (LOHSI) and make evident the challenges and barriers that had to be overcome to adopt this model. However, the benefits arising from its development and implementation are also clear, such as expanding access to services, reducing costs, increasing care quality and improving care outcomes⁽³⁻⁶⁾.

The Pan American Health Organization (PAHO) has been encouraging countries in the Latin American and Caribbean region to develop and implement APN in their health systems in the context of Primary Health Care (PHC). In 2018, it published the document “Expanding the role of nurses in Primary Health Care”, in which it highlighted nursing role and its potential for improving access to health services and achieving universal coverage in the region countries⁽⁷⁾. The publication highlighted the importance and strategies for the development, implementation and evaluation of APN, as well as the necessary skills profile, training paths and implementation and evaluation strategies so that countries have tools and are encouraged to adopt APN in their health systems⁽⁷⁾.

The document⁽⁷⁾ also presented a proposal for the development, implementation and evaluation of APN formulated by Oldenburguer et al. (2017)⁽⁸⁾, developed based on the proposal by Bryant-Lukosius and DiCenso (2004)⁽⁹⁾ and known worldwide as the PEPPA (Participatory, Evidence-based, Patient-focused Process for Advanced Practice Nursing role development, implementation, and evaluation) strategy. This strategy has been implemented by

different countries⁽¹⁰⁻¹²⁾ and has recently been used by Chile for the process of developing and implementing APN⁽¹³⁾.

In Brazil, the discussion is relatively recent, however, it is of great relevance to the Brazilian context and should be encouraged so that it reaches the strategic subjects of health and nursing sectors, considering the health needs in the territories, especially those not met, the care gaps in PHC and in the Unified Health System (SUS - *Sistema Único de Saúde*) and the existing health and nursing workforce in the country⁽¹⁴⁻¹⁵⁾.

A recent study mapped APN in PHC in a Brazilian city, revealing the need for specific training models for training these nurses, as well as regulatory mechanisms and professional accreditation. PHC was considered a potent context for the development of APN professional roles⁽¹⁶⁾.

Thus, considering the challenges for the national scenario, the present study was guided by the following research question: how to operationalize the model proposed by PAHO for the implementation and development of APN in Brazilian PHC services?

OBJECTIVES

To describe the operationalization of the steps of a model proposed by the PAHO for implementing APN in PHC services.

METHODS

Ethical aspects

The research project was submitted and approved by the Research Ethics Committees (REC) of all institutions involved. All ethical precepts involving research with human beings were observed, according to Resolution 510/2016 of the Brazilian National Research Council (*Conselho Nacional de Pesquisa*).

Theoretical-methodological framework

The APN development and implementation model proposed by PAHO (2018)⁽⁷⁾ was the basis for the course of this study. It is a model adapted from the PEPPA strategy proposed by Bryant-Lukosius (2004)⁽⁹⁾ and is in line with the PAHO line of human resources for universal access and universal health coverage.

The PEPPA strategy is characterized as a participatory, evidence-based and patient-focused process used to develop, implement and evaluate APN role. This tool makes it possible to identify barriers and facilitators of APN implementation, as well as to carry out an assessment of APN roles in different contexts to meet local health needs and support the planning of human resources in health⁽⁷⁻⁸⁾. It is organized into nine interactive steps⁽⁷⁻⁸⁾ that should preferably be performed in sequence, as shown in Chart 1.

Chart 1 - Description of a model for developing and implementing advanced practice nursing proposed by the Pan American Health Organization

Steps		Description
1 st	Improve patient health outcomes by developing human resources in nursing to advance universal health	In this step, one should identify the population with the greatest need for PHC actions, i.e., identify the patients who will be the focus of subsequent steps. PAHO recommends that national actions be directed to the most vulnerable populations with less access to health services.

To be continued

Chart 1 (concluded)

Steps		Description
2 nd	Identify stakeholders	PAHO recommends that countries develop a Pan American collaborative network to start discussions on roles and implementation strategies of APN in national scenarios, exchanging experiences and supporting each other. Nationally, they should identify all stakeholders and related to APN, adopting an interprofessional and expanded perspective, with the participation of professional councils from various health categories, trade unions, universities and policy and strategic decision-makers. The group should be able to clearly understand APN role and their ability to meet the population's priority health needs.
3 rd	Determine unmet patient health needs	Assessing general health needs, especially unmet needs, to identify the priority focus of APNu actions and so that their practices are directed and intensified towards priority needs.
4 th	Identify priorities and goals to introduce advanced practice nursing roles in primary health care	The data collected in the previous steps should determine and enable the identification of priority health needs, as well as the main barriers and facilitators for implementing APNu. Stakeholders shall establish measurable goals and objectives for the implementation process and subsequent assessment.
5 th	Define advanced practice nursing roles in primary health care	Define the actions to be taken to achieve the goals established in the previous step, outlining strategies, alternatives and solutions to achieve them. PAHO emphasizes that each country should be responsible for defining APNu roles and scope of practice, based on their context and needs, avoiding overlapping with other existing nursing categories. It is recommended that a competency profile be defined, adopted or even developed for APNu's work to monitor, evaluate and compare performances and impacts in Latin America and the Caribbean.
6 th	Plan implementation strategies	In this step, countries that seek to implement APN should enable and enhance the coalition of leaderships between professional nursing associations, establishing consensus on APNu roles and scope of practice, in addition to clearly explaining how they will enhance and qualify care to health within the scope of PHC. In this way, leaders will be able to defend APN implementation and its role, identifying the necessary resources. For this, it is necessary to create professional regulation strategies, in addition to guidelines and legislation that enable and support APNu practice, being essential the existence of a specialized teaching staff for their professional training.
7 th	Initiate the advanced practice nursing role implementation plan	Identify graduate nursing courses and institutions capable of being the first to develop competency-based curriculum-oriented courses for APN training. At the same time, guidelines, legislation, protocols and professional regulation strategies should be elaborated that act as a guide for APN development and implementation. Countries should guarantee the necessary resources for the training and professional practice of these nurses, seeking to share through evidence the implementation process effectiveness.
8 th	Evaluate APN roles	PAHO reaffirms its role as a supporter of APN implementation assessment, developing research that reveals evidence on this process, so that policymakers have elements to make strategic decisions. At the national level, countries should also develop evaluation research on APN roles and the process of implementing.
9 th	Conduct long-term monitoring of advanced practice nursing roles	This last step consists of a continuous process of evaluation and monitoring of APNu's actions.

PHC – Primary Health Care; PAHO – Pan American Health Organization; APN – Advanced Practice Nursing; APNu – advanced practice nurse.
 Source: PAHO (2018)⁷.

Study design

This is a methodological study, with a qualitative approach, which in its methodological course used the Consolidated Criteria for Reporting Qualitative Research (COREQ)⁽¹⁷⁾.

Methodological procedures

This study was part of a research that sought to trigger the process of developing APN in PHC for their future implementation in a LOHSI. It focuses on description of implementation of six of the nine steps proposed by the model. In order to achieve the objectives of each step, different tools and methodological designs were used and are presented in the Results section.

Study setting

In this study, LOHSI are formed by part of the municipal health services located in the territory under the responsibility of the

Municipal Health Department of São Paulo (MHD/SP), more specifically the Technical Supervision of Health of Campo Limpo and Vila Andrade (STSCL - *Supervisão Técnica de Saúde de Campo Limpo e Vila Andrade*) of the South Regional Coordination of Health (South RCH), located in the south zone of the city.

Since 2001, the management of health services under this supervision is shared between MHD/SP and *Sociedade Beneficente Israelita Brasileira Hospital Albert Einstein* (SBIBAE), through the *Instituto Israelita de Responsabilidade Social* (IIRS). The partnership aims to support government initiatives in the health area to strengthen the SUS, through coordination, implementation and development of Family Health Strategy (FHS).

Thus, LOHSI is composed of 13 Basic Health Units (BHU) and an Outpatient Medical Assistance/Integrated BHU, which together aggregate 87 Family Health teams (FHT), 30 oral health teams (OHT) and 06 Family Health Support Centers (NASF - *Núcleos de Apoio à Saúde da Família*). It is also responsible for an Emergency Care Unit (ECU), two Ambulatory Medical Assistance (AMA) services, a Pediatrics Ambulatory Medical Assistance

Service (Pediatrics AMAE), three Psychosocial Care Centers (CAPS - *Centros de Atenção Psicossocial*) and two Therapeutic Residential Services.

SBIBAE hires professionals, monitors the work of teams, training workers and improving the care provided through a partnership contract. It has 13,197 active professionals, with IIRS accounting for 25% of society, with 3,313 professionals, of which 1,903 work in partnership with MHD/SP. Nursing professionals (nurses, technicians and nursing assistants) account for 30% (570) of this workforce⁽¹⁸⁾.

Work steps

The first six steps of PEPPA strategy refer to the situational diagnosis and planning processes and can be used in other contexts similar to the one studied. Steps seven, eight and nine depend on strategic decisions at the national level, extrapolating the possibilities of this investigation. It is noteworthy that the steps' titles were adapted to the study objectives, although the purpose of each of them was preserved, according to the original document (PAHO, 2018)⁽⁷⁾, as shown in Figure 1.

Step 1	Characterization of epidemiological profile and description of the current model of care in local health systems
Step 2	Identification of stakeholders and recruitment of participants
Step 3	Identification of health needs and a new model of care
Step 4	Identification of priorities and goals to present advanced practice nurse role
Step 5	Definition of advanced practice nurse roles and the new service model
Step 6	Planning strategies for the future implementation of advanced practice nursing in local health systems

Figure 1 – Steps of the implementation process operationalized in the original search

RESULTS

The results of the methodological and operational path carried out in this investigation were gathered in Chart 2, which presents the title of each step, its objectives, methodological strategy and operationalization.

DISCUSSION

This research aimed to describe the operationalization of the steps of a model proposed by PAHO⁽⁷⁾ for implementing APN in PHC. The course carried out in this investigation consisted of conducting the steps (1 to 6) referring to the situational diagnosis and planning processes. In general, the methodological strategies employed enabled identifying health needs not met in LOHSI, assistance gaps in the RAS and contributed to outlining APN role, achieving the expected results.

The first step of this study provided, through documental research and analysis of data from reports made available by health information systems, elements so that workshop participants could identify the LOHSI population's health needs, especially those that are not met, and thus prioritize the focus of APN action based on these needs^(2,7,24-26). The use of secondary data is a consolidated and relevant strategy⁽²⁷⁾; however, in its application, it is necessary to guarantee the data collected quality. In this sense, it is important to consider, in the planning and execution of this step, the prior assessment of information sources' quality dimensions.

Another point to be highlighted refers to the difficulty in obtaining data and identifying indicators in the sources used that represent outcomes and results of nursing practice and not just production markers. The literature portrays that the search for indicators of effectiveness and evaluation of nursing intervention outcomes is still a gap to be overcome⁽²⁸⁾. In view of this, it is advocated that managers and health professionals develop and use clinical management tools that strengthen, consolidate and expand the visibility of good nursing practices.

The second step taken consisted of defining stakeholders or strategic subjects for APN development and implementation. This was one of the most strategic and important moments, since they are subjects who actively participate in the process and who, therefore, can prevent or facilitate the way in which APN will be implemented in LOHSI.

Chart 2 – Description of the study methodological and operational path, according to the steps of a model proposed by the Pan American Health Organization⁽⁷⁾

First step: Characterization of epidemiological profile and description of the current model of care in local health systems	
Objective	Methodological strategies
1. Trace the local health system population epidemiological profile; 2. Describe the health care model offered.	1. Documentary research and analysis of data from reports available in the databases and official pages of the MHD, SBIBAE and <i>Rede Nossa São Paulo</i> .
Operationalization	
Secondary epidemiological data made available by the official information systems of São Paulo in the Health Bulletin in Epidemiology and Information Coordination Data, the MHD and the SBIBAE were collected: a) Indicators of care production and quality available in the monitoring panel of indicators and data of health facilities (managed by the institution) of the last year or the last version available. b) Data from the Atlas of Inequality (2018) ⁽¹⁹⁾ , prepared by <i>Rede Nossa São Paulo</i> , which, since 2012, annually presents a study on the indicators of the 96 city districts.	

To be continued

Chart 2

Second step: Identification of stakeholders and recruitment of participants	
Objectives	Strategies
1. Involve stakeholders in the process of developing and implementing advanced nursing practices in LOHSI.	1. Recruitment of professionals from different levels, with the involvement of health professionals, representatives of nursing and medicine class bodies, health administrators and government agencies that participate in the health system management, as well as representatives of users and families.
Operationalization	
<p>All stakeholders were identified in the process of developing and implementing APN in LOHSI. For this, invitation was made to participate in the workshops to each stakeholder. This approach was performed individually by phone, messages by application or email. Representatives of the following bodies were invited: Technical Supervision of Health of Campo Limpo and Vila Andrade; South Regional Health Coordination; MHD; MHD Nursing Area; São Paulo Regional Nursing Council directly involved in the Primary Care Practices Workgroup; Management Council for the Technical Supervision of Health in Campo Limpo and Vila Andrade; Brazilian Society of Family and Community Medicine; and SBIBAE Management.</p> <p>Representatives of different professional categories linked to the SBIBAE also participated, namely: primary care and health network manager; primary care technical support coordinator, family and community physician and nurse; health coordinators of FHS services managed by the institution; a representative of senior nurses from the FHS teams; a representative of full nurses from the FHS teams.</p>	
Third step: Identification of health needs and a new model of care	
Objectives	Strategies
1. Characterize the population's health needs, gather the phenomenon perception by stakeholders and analyze the strengths and limitations of the current model of care to meet the LOHSI population's health needs.	1. Conducting a workshop (Workshop I), recorded and filmed, in which the main researcher took on the role of active facilitator, promoting the involvement of participants, valuing the speeches and contributions of all; 2. Analysis of empirical material resulting from the workshop (discourse analysis and use of WebQDA software) ⁽²⁰⁾ .
Operationalization	
<p>This step involved the assessment of population's health needs, especially the unmet needs, to identify the priority focus of APNu's actions, in order to direct their practices to priority needs.</p> <p>The workshop lasted five hours. Data collected in the first step were presented so that participants could reflect on the epidemiological profile and could express what the LOHSI population's health needs were.</p> <p>Initially, participants were informed about the research object and objectives, and, after reading it, they signed an Informed Consent Form. Then, the workshop's specific objective was explained, i.e., the problematization of the researched phenomenon, in this case APN development and implementation in PHC. The main researcher presented the results of quantitative data analysis collected in the first step as a trigger for the discussion. It sought to verify participants' understanding of the theme, related problems, as well as challenges and possibilities to solve them.</p> <p>Moreover, a discussion was held with participants, seeking to answer the following questions, proposed by Smith et al. (2003)⁽²¹⁾: what are the health needs of patients and families? What is the context and what are the consequences of these needs? What constraints contribute to these needs? What are stakeholders' perceptions about these needs? What additional information is required about these needs? What sources and methods can be used to acquire this information?</p> <p>The product of this first workshop was the involvement of stakeholders, as well as the problematization of phenomena and the identification of challenges and possibilities for APN development and implementation.</p>	
Fourth step: Identification of priorities and goals to present advanced practice nurse role	
Objectives	Strategies
1. Establish measurable goals and objectives for the implementation process and subsequent evaluation of APN.	1. Workshop (Workshop II) to discuss the data collected in previous steps (identification of priority health needs, main barriers and facilitators for implementing APNu).
Operationalization	
<p>The second workshop lasted four hours. Participants, gathered in small groups, discussed the results and identified the priority needs to be supported by APNu. Each group presented its priorities and goals and then a synthesis of all participants was prepared.</p>	

To be continued

Chart 2 (concluded)

Fifth step: Definition of advanced practice nurse roles and the new service model	
Objectives	Strategies
<ol style="list-style-type: none"> 1. Compare the current professional profile of nurses in LOHSI PHC with the expected profile of APNu through competences; 2. Identify the perception of nurses, physicians and coordinators on issues related to APN development and implementation; 3. Identify the self-perception of nurses' competence for frequent care actions in PHC; 4. Identify the perception of BHU coordinators and physicians in relation to the competence of nurses in their service to carry out common care actions in PHC; 5. Identify the association between the generalist nurses' profile and the self-perception of competences; 6. Identify the necessary changes in LOHSI to change the care model; 7. Define APNu role in this new model; 8. Identify the changes in roles and responsibilities needed to implement new care practices through APN. 	<ol style="list-style-type: none"> 1. Elaboration of a questionnaire with closed questions made available on a virtual platform to professionals of the studied LOHSI; 2. Online survey for PHC nurses (full and senior), FHS physician and coordinators; 3. Workshop (Workshop II), with the meeting of small groups for reflection and problematization on the theme; 4. Elaboration of a synthesis of the information worked in the session.
Operationalization	
<p>The activities performed can be divided into two great moments: the first, related to the quantitative phase (construction, collection of questionnaire information and analysis) products, and the second, referring to conduction of activities carried out during the qualitative phase through the workshop.</p> <p>a) Quantitative phase: The questionnaire used was prepared by the researcher, based on the instrument by Magnago (2017)⁽²²⁾, PAHO competences (2018)⁽⁷⁾ and Rewa's domains of competence (2018)⁽²³⁾. It dealt with participant characteristics, the service profile in which they work, the opinion on aspects related to regulation, expansion of practice scope and change in professional roles. Four versions of this instrument, proposed to the different respondents (coordinators, senior nurses, full nurses and physicians), were made available on an online platform. Invitations were then sent to stakeholders via e-mail. After expressing agreement to participate in the study, professionals were invited to complete the questionnaire. At the end, 200 subjects fulfilled the participation criteria and were included in this step.</p> <p>b) Qualitative phase: The workshop had the participation of subjects already involved in the previous qualitative steps. As a trigger for the discussion, the presentation of the quantitative phase questionnaire partial results was used, including the respondent profile. Later, in small groups, participants were invited to reflect and problematize the following questions proposed by Bryant-Lukósius and DiCenso (2004)⁽⁹⁾: what changes are needed in LOHSI to change the care model? What changes in roles and responsibilities are necessary to implement new care practices derived from APN? What should be APNu role in these practices? Is there a need for additional expertise? If so, would APN role enhance the ability to achieve goals to meet patients' health care needs? How do we know that? How well does an APN role fit into this new model of care? What are the advantages and disadvantages of an APN role compared to alternative health care provider roles?</p> <p>At the end, the groups presented their provisional syntheses and, later, the final synthesis was prepared, from which the groups suggested roles for APNu's work.</p>	
Sixth step: Planning strategies for the future implementation of advanced practice nursing in local health systems	
Objectives	Strategies
<ol style="list-style-type: none"> 1. Identify facilitators and barriers to APN development and implementation; 2. Outline necessary strategies for the process of development and APN implementation in PHC; 3. Identify resources and facilitators for the process of developing and implementing APN in PHC. 	<ol style="list-style-type: none"> 1. Workshop (Workshop II) focused on outlining strategies for APN implementation.
Operationalization	
<p>This step occurred during the second workshop. Participants addressed the following issues: what are the facilitators and barriers to APN role development and implementation in this LOHSI? What strategies are needed to maximize role facilitators and minimize barriers? What resources and supports are needed for the development and implementation of roles?</p>	

MHD – Municipal Health Department; SBIBAE – Sociedade Beneficente Israelita Brasileira Hospital Albert Einstein; LOHSI – local health systems; APN – Advanced Practice Nursing; FHS – Family Health Strategy; PHC – Primary Health Care; APNu – advanced practice nurse; BHU – Basic Health Units; PAHO – Pan American Health Organization.

One of the identified potentials that contributed to the success of this step concerns the strong institutional support received throughout the study development. The engagement of subjects who participate in LOHSI senior management enabled incorporating the proposed ideas and the follow-up of process activities as part of an institutional project and not just a segmented idea that was introduced in the scenario by the researchers. As it is a phenomenon of common interest, this condition favored the dialogue with professionals and the operationalization of each step's activities. Another strategic point in attracting strategic actors refers to the analysis of forces, relationships and distribution of institutional powers in LOHSI and in corporations with which the

development of advanced nursing roles may be related. Therefore, a deep and strategic analysis is essential for the selection and identification of strategic actors.

The following steps (3 to 6) were developed mainly from workshops. Other strategies were also employed, such as the use of questionnaires. It is noteworthy that using workshop enhanced the results achieved, revealing a fruitful space for reflection and collective construction, which allowed the exchange of experiences and individual contributions⁽²⁹⁾. On the other hand, some challenges identified in this process were time management, organization and scheduling of meetings in order to guarantee the presence of all stakeholders.

Specifically in relation to the third step, the activities developed were based on the presentation of an epidemiological profile that supported the discussion of participants in the workshop to identify unmet health needs and care gaps in the current LOHSI RAS model so that participants could understand their specificities and assess how APN would act in this domain of practice. It is worth mentioning that the methodological strategies used in the first step were essential to guarantee a solid product that was used as a trigger for the discussions proposed for this moment.

The data and information collected in the previous steps allowed the identification of priority health needs, main barriers and facilitators to implement APN. In the second workshop, participants established measurable goals and objectives for APN implementation and subsequent assessment. The level of complexity of this step objectives required time and extensive debate, which is a research limitation, because it was only possible to dedicate a part of the workshop to the group to carry out its discussion, synthesis and presentation.

The fifth step, organized into two phases (quantitative and qualitative), sought to define APN roles and the new model of care. The quantitative processes involved the construction of a questionnaire and its application in an online survey format. Among the advantages of using a virtual platform for data collection, low cost, reduced exposure of participants to the researcher, convenience to respond at an opportune moment for participants, agility to trigger the instrument for a significant number of participants, real-time control of the number of completed instruments and reduction of possible errors during an eventual transcription of stand-out data, since participants' responses are automatically entered into a database⁽³⁰⁾.

The use of this tool made it possible to identify the competence of LOHSI general nurses (self-reported and perceived by the other) to perform a series of activities and frequent procedures in PHC and also actions planned for APN in the field of work management, research and evidence-based practice. The literature considers it essential to identify and indicate the levels of responsibility and the expected performance for APN, as well as clearly describe its scope of action⁽²⁵⁾.

It is noteworthy that the definition of a competency profile is essential to support the scope of practice definition and APN role in a LOHSI. However, the definition of this profile is quite complex and can generate controversy, being clearly a challenge for systems that intend to invest in the development of APN, since the profile is the basis for training and professional practice⁽²⁵⁾.

In addition to the scope of practice definition, the profile of competencies and a deep and critical analysis of the job market, in APN's performance, it is necessary to define the domains of practice, which can be quite broad and diverse, expanding the scope of work and professional role. Countries that have nurses performing APN present a diversity of practice domains, which can even generate a confusion of roles⁽²⁵⁾.

Usually, the scope definition of APN practice arises from the expansion of general nurses' clinical practice, which often causes conflicts, as general practitioners may be reluctant to shift their focus to an expanded clinical practice, with new standards of performance, in addition to refusing to develop more complex competencies and skills⁽²⁵⁾. Such assertions were identified in the operationalization of the fifth step's qualitative phase, during the

conduction of workshops. Thus, it is understood that the strategy employed enabled theme problematization and reflection product gathering.

Finally, in the sixth step, which was also carried out in the second workshop, participants were invited to discuss and present a planning proposal with strategies for future implementation. In this context, the importance of evaluating and discussing the workforce composition is highlighted, especially in health systems that need to strengthen universality, as well as SUS, which, despite being a universal system, faces important challenges related to universality and equity.

Both developed and developing countries face difficulties in achieving universal coverage for problems related to the health workforce. Often, geographical distribution is not adequate or professionals do not have the appropriate training and skills to meet the population's health needs, maintaining a hospital-centric and fragmented logic, a problem also highlighted by the PAHO report (2019)⁽³¹⁾.

In addition to inadequate training and distribution, health systems face challenges related to problems in supervision, regulation and precarious working conditions, creating difficulties in team composition and in professionals' work⁽³²⁾. As in the fourth step, holding just one four-hour workshop represented an important challenge, requiring more meetings for the strategic subjects to mature and deepen their reflections.

Study limitations

In this study, it was possible to apply six of the nine steps of a model proposed by PAHO⁽⁷⁾, as the others depend on decisions and actions at macrostructural levels, such as the Ministries of Health and Education, the Federal Nursing Council (COFEN), the Brazilian Nursing Association (ABEn - *Associação Brasileira de Enfermagem*), Council of State and MHDs, National Health Council and other professional and professional representation entities, whose participation is fundamental in the technical and political debate that must precede APN development and implementation in Brazil.

The fact that it was carried out in a single LOHSI may also represent a limitation, as the results of this study correspond to the characteristics of this specific context and cannot be generalized to the national reality. On the other hand, considering that LOHSI has 360,000 inhabitants, and is larger than the vast majority of Brazilian cities, this experience may support the realization of a similar process in some of these Brazilian cities.

Contributions to nursing

The model⁽⁷⁾ proved to be adequate as a method to support APN development and implementation in PHC of a Brazilian LOHSI. The methodological and operational design described in the present study can be used in different regions of Brazil as a proposal for the elaboration of a national plan for APN implementation, based on different realities and possible dimensions for the performance of APN in PHC.

Thus, it is understood that the path presented can support future research, initiatives by health systems managers and effectively contribute to the actions of strategic actors involved in

the development of human resources policies in health and nursing, thus promoting professional advancement of the category in a manner guided and structured by the population's health needs, services and care networks.

FINAL CONSIDERATIONS

This research aimed to describe the operationalization of the steps of a model proposed by PAHO⁽⁷⁾ to implement APN in PHC, specially formulated to support Latin American and Caribbean countries in the process of developing and strengthening their health systems. The proposed model proved to be adequate, as far as it was possible to apply it, as a method to support APN development and implementation in PHC a Brazilian LOHSI.

The data about the model operationalization, presented in this study, can support future research and even initiatives by health system managers for APN development and implementation in Brazil.

It is understood that APN implementation can contribute to strengthening nursing as a professional category and take over its leading role in the national health system, contributing even more to expanding access to services and strengthening SUS structuring principles and PHC essential attributes.

SUPPLEMENTARY MATERIAL

The work was extracted from a physicial thesis entitled "*Práticas avançadas de enfermagem na atenção primária à saúde: subsídios para o desenvolvimento e a implementação em um sistema local de saúde*", presented to the Graduate Program in Nursing (GPN), Department of Public Health Nursing, School of Nursing, Universidade de São Paulo. The material is available on the USP Digital Library of Theses and Dissertations. Access at: <https://www.teses.usp.br/teses/disponiveis/7/7143/tde-22022021-160137/pt-br.php>

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