

Management of Continuing Health Education in Public Health Schools and Federal University Hospitals

Gestão da Educação Permanente em Saúde em Escolas de Saúde Pública e Hospitais Universitários Federais

Gestión de la Educación Continua en Salud en Escuelas de Salud Pública y Hospitales Universitarios Federales

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ABSTRACT

Objective: To identify the technologies used in the management of Continuing Health Education (CHE) in Public Health Schools across federal states and in Federal University Hospitals, focusing on the organization of practice settings and training of health professionals.

Method: A qualitative, exploratory, and descriptive study. Managers from 23 healthcare education institutions in Brazil participated. Data collection was conducted between July and September 2024 through an electronic questionnaire. The results were analyzed using Bardin's content analysis method.

Results: More than one-third of the surveyed institutions do not have specific tools dedicated to managing processes related to Continuing Health Education, relying instead on Excel® spreadsheets for recordkeeping, which leads to operational challenges and rework. Strengths identified in the study included the integration between education and service, and the implementation of the National Policy on Continuing Health Education by managers.

Conclusion: Although Continuing Health Education is established through public policy, it still faces challenges in being implemented and monitored within Public Health Schools and Federal University Hospitals, which lack innovations in process management. The need for a specific tool that ensures work quality, data security, and prevents rework was clearly identified.

Descriptors: Education Continuing; Health Human Resource Training; Health Policy; Information Systems; Health Management.

RESUMO

Objetivo: Identificar as tecnologias utilizadas na gestão da Educação Permanente em Saúde (EPS) em Escolas de Saúde Pública nos estados federativos e nos Hospitais Universitários Federais, com foco na organização de cenários de prática e formação de profissionais de saúde.

Método: Pesquisa qualitativa, exploratória e descritiva. Participaram gestores de 23 instituições de ensino em saúde no Brasil. A coleta de dados foi realizada entre julho e setembro de 2024 por meio de questionário eletrônico. Os resultados foram submetidos à análise de conteúdo de Bardin.

Resultados: Mais de um terço das instituições pesquisadas não dispõe de ferramentas específicas voltadas à gestão dos processos que envolvem educação permanente em saúde, utilizando a ferramenta Excel® para os registros, o que gera dificuldades e retrabalho. Como potencialidades no estudo, destacou-se a articulação ensino-serviço e a aplicabilidade da Política Nacional de Educação Permanente em Saúde pelos gestores.

Conclusão: a EPS, apesar de estabelecida por meio de política pública, ainda encontra dificuldades para ser instituída e monitorada em Escolas de Saúde Pública e Hospitais Universitários Federais, que carecem de inovações na gestão de processos. Ficou evidente a necessidade de uma ferramenta específica que garanta a qualidade do trabalho, a segurança dos dados e evite retrabalho.

Descritores: Educação Continuada; Capacitação de Recursos Humanos em Saúde; Política de Saúde; Sistemas de informação; Gestão em Saúde.

RESUMEN

Objetivo: Identificar las tecnologías utilizadas en la gestión de la Educación Permanente en Salud (EPS) en las Escuelas de Salud Pública de los estados federativos y los Hospitales Universitarios Federales, con énfasis en la organización de escenarios de práctica y en la formación de profesionales.

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Método: Investigación cualitativa, exploratoria y descriptiva. Participaron gestores de 23 instituciones de formación en salud de Brasil. La recolección de datos se realizó entre julio y septiembre de 2024 mediante un cuestionario electrónico. Se utilizó el análisis de contenido de Bardin.

Resultados: Más de un tercio de las instituciones investigadas no cuentan con herramientas específicas orientadas a la gestión, utilizando Excel® para los registros, lo que genera dificultades y retrabajo. Como potencialidades, se destacó la articulación entre enseñanza y servicio, así como la aplicabilidad de la Política Nacional de Educación Permanente en Salud.

Conclusión: Aunque la EPS está establecida como política pública, aún enfrenta dificultades para ser implementada y monitoreada en las Escuelas de Salud Pública y en los Hospitales Universitarios Federales, los cuales carecen de innovaciones en la gestión de procesos. Se evidenció la necesidad de una herramienta específica que garantice la calidad del trabajo, la seguridad de los datos y evite el retrabajo.

Descriptor: Educación Continua; Capacitación de Recursos Humanos en Salud; Política de Salud; Sistemas de Información; Gestión en Salud.

INTRODUCTION

Historically, the Unified Health System (*Sistema Único de Saúde* – SUS) has undergone transformations and evolutions throughout its 35 years of existence. The continuity and expansion of services requires continuous training for healthcare professionals. The National Policy on Continuing Health Education (*Política Nacional de Educação Permanente em Saúde* – PNEPS), established in 2004 and consolidated in 2017, has as its strategic premise the integrated approach to professional practice settings. This policy establishes guidelines that promote knowledge production through practices that support the training of workers for the SUS⁽¹⁾.

Continuing Health Education (CHE) is conceptually defined as a

“political-pedagogical strategy that focuses on the problems and needs arising from the health work process and incorporates teaching, health care, system management, and social participation and control into daily work aiming to produce changes in this context”⁽²⁾.

Updates to the aforementioned policy have discussed strategies to foster a better articulation among educational institutions in implementing a training model compatible with its guidelines, as well as the use of innovative teaching methods that address the challenges still present in the SUS⁽²⁾.

Considering that CHE conceptually encompasses teaching and work in healthcare⁽²⁾, curricular internships, whether in professional education, undergraduate studies, or residency, highlight the importance of connecting theory and practice in developing competencies. Activities carried out in the practice settings are essential, as they allow the application of theoretical knowledge, development of fundamental skills, and understanding of the reality of patient care. This immersion enhances clinical competence and the specific skills of each profession⁽³⁾.

Since the implementation of PNEPS, CHE has been understood as a transformative strategy in professional practices, with great potential for breaking away the traditional

paradigm. It aims to improve care management through critical reflection, using tools capable of supporting transformation in this context. It is an instrument that enables personal, social, and cultural development, is centered on the teaching-learning process⁽⁴⁾, essential for transforming the quality of healthcare. When analyzing its challenges and potential, authors emphasize the relevance of continued training for health professionals in addressing current demands⁽⁵⁾.

It is known that the operationalization of a policy of such magnitude, which aims to be the transformative and structuring axis for strengthening the SUS, reveals and addresses numerous challenges that require a series of additional strategies, in this case the PNEPS, to promote changes in health practices and, as a result, improve health outcomes for the population. The adoption of mechanisms for monitoring and evaluation can contribute to solutions in this field, including the use of indicators as a management tool⁽⁶⁾.

Other strategies, such as the integration of teaching and service, enhance the CHE process. This integration, based on collective, integrated, cooperative, and agreed-upon work, considers the perspectives of interdisciplinarity and inter-professionality⁽⁷⁾. Furthermore, the management of health work and education in SUS is also a focus of the Ministry of Health's Research Priority Agenda, which is addressed as one of its development axes⁽²⁾.

Topics such as technology and innovation also remain central in the agendas of governments, companies, educational institutions, and regulatory agencies, exerting a strong influence on both health and education sectors. To guide future actions in the management of health technologies, some considerations are essential, particularly the need for federal-level direction to support their implementation within SUS, along with standardization and planning. Among the various challenges, the use of regulatory and advisory instruments appears to be the first step in optimizing the implementation of technologies in the area⁽⁸⁾.

Advances resulting from technological development, with an emphasis on the tools implemented during the pandemic caused by the novel coronavirus (SARS-CoV-2), have stimulated

the continuous production of new knowledge and technologies, described as strategic for the sustainability of systems and society as a whole⁽⁹⁾, including the field of education.

Health technologies are defined as equipment, devices, artifacts, medicines, scientific knowledge, products, processes, or services, consisting of both material and non-material goods used in the provision of services to the population. These technologies aim to solve human and structural problems related to health from personal, social, structural, political, and cultural dimensions⁽¹⁰⁾.

Based on the definition above, this study considers technology as a tool aimed at improving processes in the management of CHE, with a focus on organizing practice settings and training professionals. In this field, health institutions constitute important practice spaces for curricular activities, playing a fundamental role in developing the competencies of professionals destined to work in the public health system. These environments host students of different educational levels, with a special emphasis on medical residency and multiprofessional programs.

To ensure that the integration of students' practical training occurs in an organized manner, it is essential that the managers involved use appropriate tools for this purpose, whether they be a product that meets the needs of the work process, such as a software. These tools should be able to structure and standardize the work, allowing training activities to be clearly defined and monitored.

Furthermore, the use of technologies can enable monitoring of student performance, facilitating real-time adjustments and interventions. This not only contributes to the quality of the training provided but also ensures that pedagogical practices align with the demands and possibilities of the healthcare system, promoting more effective integration between theory and practice.

To allow this understanding, the research question that guided this investigation was: How do Public Health Schools (PHS) in federal states and Federal University Hospitals (FUHs) manage CHE in the organization of practice settings and training of healthcare professionals?

Upon this question, this study aimed to identify the technologies used in CHE management in Public Health Schools in federal states and Federal University Hospitals, focusing on the organization of practice settings and the training of healthcare professionals.

■ METHOD

This research used a qualitative, exploratory, and descriptive approach. The study participants were managers of the

agencies responsible for CHE in Public Health Schools within State Health Departments (SHD) and those responsible for managing health education in Federal University Hospitals affiliated with the Brazilian Hospital Services Company (*Empresa Brasileira de Serviços Hospitalares* – EBSEH). These participants were selected based on the criteria of including the main institutions responsible for training human resources in the SUS.

The research is part of the macroproject "Technology for Managing Continuing Health Education" supported by Universal Call No. 10/2023 from the National Research Council (*Conselho Nacional de Pesquisa* – CNPq)/ Ministry of Science and Technology (*Ministério da Ciência e Tecnologia* – MCTI) and Call No. 20/2024 from the Foundation for Research and Innovation Support of the State of Santa Catarina (*Fundação de Amparo à Pesquisa e Inovação do Estado de Santa Catarina* – FAPESC). Furthermore, the study complied with the recommendations of the international protocol Consolidated Criteria for Reporting Qualitative Research (COREQ)⁽¹¹⁾.

The participants were managers from the Teaching and Research Departments (TRD) of the FUH and PHS. To this end, a contact survey was initially conducted between March and June 2024, as described below.

The contact survey of the TRDs of the FUHs, linked to the EBSEH network, was conducted using information available on the public company's website⁽¹²⁾. These departments are responsible for understanding, organizing, and integrating processes and connecting people in the areas of teaching, research, and technological innovation in health. Therefore, they are responsible for managing CHE regarding the training of professionals at the technical, undergraduate, and graduate levels (with particular emphasis on medical and multiprofessional residencies). At the time of data collection, 39 contacts were found on the company's website.

The second survey consisted of a consultation with the General Coordination of Strategic Actions in Health Education (*Coordenação-Geral de Ações Estratégicas de Educação na Saúde* – CGAES) of the Department of Health Education Management (*Departamento de Gestão da Educação na Saúde* – DEGES), of the Secretariat of Labor and Health Education Management (*Secretaria de Gestão do Trabalho e da Educação na Saúde* – SGTES) of the Ministry of Health (*Ministério da Saúde* – MS), to which the Collaborative Network of State Public Health Schools (*Rede Colaborativa das Escolas Estaduais de Saúde Pública* – REDE COESP) was referred⁽¹³⁾. The network aims to strengthen the SUS by promoting health education management at the state level. It is comprised of 20 PHS covering the five regions of the country, reflecting national coverage, regional diversity, and unique characteristics.

After identifying potential participants, the lead researchers conducted data collection using an electronic questionnaire with open-ended questions, allowing them to express their opinions on the proposed topic. One of them holds a doctoral degree and works as a nurse at the FUH of the Federal University of Santa Catarina (*Universidade Federal de Santa Catarina* – UFSC) and is a postdoctoral student, and the second is a researcher and professor in the Graduate Program in Nursing Care Management (*Programa de Pós-graduação em Gestão do Cuidado em Enfermagem* – PPGPENF) at the same university and coordinator of the macro-project “Technology for the Management of Continuing Health Education”. Data collection took place between July and September 2024.

To this end, an email was sent containing an invitation letter that included identification about the study, lead researchers, institutional affiliation, contact details for clarification, the study's objectives, and the informed consent form (ICF), ensuring voluntary and informed participation by respondents. Subsequently, a structured questionnaire was sent via the Google Forms® platform, consisting of 16 questions addressing the study theme. Prior to distribution, the questionnaire was tested by two experts, who did not suggest any modifications. A second round of invitations was issued for those who had not responded in the first round.

Data collection was considered saturated when no new elements were identified, and additional information no longer contributed to understanding the phenomenon under study⁽¹⁴⁾, and therefore, no further round of invitations was conducted, nor were further contacts made with participants. This decision was shared between the two main researchers.

Of the institutions contacted, which totaled 39 FUH and 20 PHS, the electronic questionnaire was completed by 23 of them, 15 FUH and 8 PHS, who then constituted the study participants.

Based on the responses from the participating administrators, the main researcher analyzed the data, along with the other researchers, four of whom were professors from the PPGPENF/UFSC program, and one was a nursing student with a scholarship from the Institutional Scientific Initiation Scholarship Program (*Programa Institucional de Bolsa de Iniciação Científica* – PIBIC/CNPQ).

The analysis followed the steps proposed by Bardin⁽¹⁵⁾, allowing for a deeper understanding of the phenomenon under investigation and enabling the description, explanation, and highlighting of aspects found in the collected material. This analysis process promoted connections between the information, facilitating the search for answers to the objectives proposed in the study. To this end, the steps proposed by the author were followed: (1) pre-analysis; (2)

material exploration; (3) processing of results, inference, and interpretation.

In the pre-analysis phase, the material was organized using Microsoft Excel® spreadsheet software and Microsoft Word® processing tables. After initial organization, a “floating reading” was performed, selecting responses that aligned with the proposed objective and constituted the corpus of analysis.

The material exploration phase consisted of selecting the elements (phrases, words) present in the questionnaire responses that contained information about CHE management. The elements considered significant were previously separated into units of analysis for the research. The coding process was carried out openly, without predefined categories.

In the final stage of this process, the researchers proceeded with the treatment of the results and their interpretation based on the organized material. The interpretive process gave meaning to the collected statements, and understanding emerged after engaging with the established theoretical framework, considering CHE in two dimensions: as a public policy defined by a set of governmental guidelines and actions aimed at improving the training of healthcare professionals to ensure more integrated and effective practice, and as a conceptual framework for teaching and learning in the context of health education focused on SUS. This theoretical framework allowed for a contextualized interpretation of the collected information, enabling the identification of significant trends and relations in the healthcare training process with the principles of the Brazilian healthcare system.

The analysis led to the emergence of four categories: Perception of CHE; Teaching-service integration as a driver of CHE; Potentialities and challenges of CHE management; and The need for technologies in CHE management.

The project was approved by the Human Research Ethics Committee of UFSC (under number: 6.648.854, CAAE: 76217823.3.0000.0121) and complied with the principles outlined in Resolutions 466/2012 and 510/2016 of the National Health Council (*Conselho Nacional de Saúde* – CNS).

RESULTS

The participants in this study were responsible for CHE management and teaching management activities in FUH and PHS, the latter at the state level. After two rounds of data collection and saturation, 23 institutions participated. To preserve participant anonymity, hospitals will be identified as “H” and Schools of Public Health as “S”, followed by a number, in the order responses were received.

Regarding the positions held by managers associated with FUHs during the study period, the description revealed the following distribution: four managers served as heads of the Teaching Management Sector, four held the position of head of the Undergraduate, Technical, and Extension Education Management Unit, two worked as Managers of Teaching and Research, one was head of the Research Management Sector, one was responsible for the E-Health Unit, one led the Technological Innovation in Health Management Unit, and an organizational psychologist and a nurse were also involved, all as specified in the EBSERH organizational chart⁽¹²⁾. In the context of the PHS, a similarly significant diversity was observed: three managers identified themselves as coordinators, one as a manager, one as a superintendent, one as a director, in addition to an education and health research analyst and a psychologist.

All the institutions consulted reported carrying out educational and CHE management activities, in accordance with the PNEPS recommendations, and the results were described and analyzed based on four categories, supported by the assumptions of this policy⁽¹⁾, which are presented below:

In the first category, called Perception of CHE, the data indicate the activities carried out within the scope of institutions, integrating actions that involve the work process and its dimensions linked to teaching and health practice, seeking an improvement in the health of the population, which encompasses the training process of students at the professional, undergraduate, and postgraduate education levels, including residencies and training of SUS professionals, as evidenced in the statements:

Development of educational projects and strategies within the SUS framework, with an emphasis on a multi-professional and interdisciplinary approach. The goal is to improve the quality of life of the state's population by offering training for public servants, technical courses, postgraduate programs, and medical and multiprofessional residencies (S19).

Training activities focused on best practices in preceptorship, control of internship placement requests, and monitoring of preceptors (H3).

The existence of teaching practices such as scientific sessions, academic conferences, and training courses was also identified in the responses regarding CHE activities carried out at the institution, addressing continuing education activities as synonymous with permanent health education:

Through regular or occasional courses offered by staff members from the care team (H8).

Scientific sessions, scientific conferences, training courses (H2).

Training courses, in-service training, lectures, and discussion circles (H21).

In the second category, titled Teaching-service integration as a driver of CHE, the importance of this integration within the SUS training context is emphasized. This articulation is essential for promoting practices that meet the needs of the social context and for training professionals better prepared to act critically. It also contributes to better communication among those involved and supports the quality of care and patient safety⁽¹⁶⁾. This theme was identified in the study and evidenced in the following statements:

Permanent education with activities focused on education and work for the SUS, including medical and multi residencies (S11)

Courses, in the work process, related to extension programs – PET Saúde (S12)

Discussion circles on diversity, training on research, preceptorship, teaching methodologies, cesarean birth prevention, basic life support, etc. (H18).

Additionally, the importance of effective articulation between different CHE instances, such as the Continuing Education Centers (CECs) and the Teaching and Service Integration Committees (TSIC), is crucial for implementing their conceptual frameworks. This articulation is important to foster information exchange and interdisciplinarity⁽¹⁷⁾.

From this perspective, teaching-service integration was also identified:

Activities are carried out in partnership with the Continuing Education Center (CEC) in the Personnel Development Unit, aimed at training undergraduate, master's, and doctoral students, residents, and professionals (H4).

Qualification courses, discussion circles, meetings with the Teaching-Service Integration Committee (TSIC), CECs, plans and projects in partnership with municipalities and technical departments of the State Health Department focused on permanent health education (S6).

This category highlighted concepts of professional training, emphasizing activities that integrate teaching and service. The importance of involving undergraduate and postgraduate students in practice fields is emphasized, as well as the need for continued training of professionals working in SUS to occur in an articulated and integrated way with education.

Regarding the category Potentialities and challenges in CHE management, the importance of communication between educational and health institutions stands out as essential for the activities developed in practice by future professionals. It became clear that communication is a strategic and fundamental tool:

It is easier when internship registration information is passed on by the course coordination (H1).

Besides this, few potentialities were highlighted by participants, with more than a third of the institutions not mentioning any ease in their CHE management workflow, which corroborates the need for tools to facilitate this process. These data reveal that managers and professionals face challenges in implementing and monitoring the PNEPS.

Regarding the difficulties identified in the study, they refer to the process of requesting and granting internships, particularly during the phase of submitting the information and documentation required for formalization, including, among others, the internship agreements. Challenges were also listed concerning the management of practice fields and the rotation of students by area, as well as the preparation of residency schedules:

Difficulty in viewing available positions per unit, how many interns are in the sector, from which courses and universities, whether the sector/unit is already full of interns, and whether it has the capacity for more placements – there should be a system where preceptors and/or supervisors update available slots at the beginning and end of each internship; this applies to both permanent education actions and educational activities (S6);

A manager's suggestion for conducting educational activities was considered relevant:

The implementation of a system in which preceptors and/or supervisors update the information on openings at the beginning and end of each internship (S6).

Among the responses obtained, the vast majority highlighted the lack of technology specifically developed for this purpose. It became clear that interviewees face difficulties and rework in performing activities, with the majority mentioning some of these.

This statement was identified by the reference to inputting multiple Excel® spreadsheets. The main reasons cited were loss of information, complexity in managing spreadsheets, an excessive number of spreadsheets to be filled out, the inability to verify in real time the activities being carried out in the internships, a lack of integration among the systems used, and the impossibility of monitoring attendance, as some examples showed below:

Only internships are recorded, but there is no attendance tracking. There is difficulty in performing attendance control due to a lack of information from the source (students/courses) and the absence of a system that could be applied by the Teaching and Research Management (H1).

There is difficulty accessing information about internships because the internship agreements are signed in the university's Electronic Information System (Sistema Eletrônico de Informações – SEI) and not in the EBSERH SEI (H9).

Lack of interoperability between tools and communication systems of the Higher Education Institutions and the Hospital de Clínicas; no internal, user-friendly, accessible system within the hospital that facilitates the management of spaces and distribution of students; dependency on the extension platform of the Universidade Federal de Minas Gerais (UFMG), which often leads to rework (H15).

Manually recording/monitoring internship activities in Excel spreadsheets and Word spreadsheets, making the process difficult and compromising data reliability (S19).

The lack of standardization for teaching management, even among agencies within the same public entity, was also highlighted in the following statements:

Need for a standardized instrument to record/control activities across the network (H4).

Standardization of a tool for managing teaching across all Teaching and Research Departments of the Ebserh Network (H3).

The lack of a system that includes attendance tracking for internships by the healthcare institution was also mentioned:

There is difficulty in monitoring attendance due to the lack of information provided by the source (students/course) (H1).

Another difficulty highlighted was:

The absence of a systematic control for student evaluations (S12).

The challenges pointed out by the participants led to the creation of the category “The need for technologies for CHE management,” given that the lack of tools, or even those currently available, hinders efficient management processes, indicating the need for innovation in the field.

Difficulties with field allocation, attendance control, and process monitoring through manually filled spreadsheets, which leads to rework, were some of the issues identified. Predominantly, participants use Excel® as a tool for monitoring their activities. Fifteen indicated this technology as their primary method of information management. Chart 1 presents the tools currently used for CHE management at the Public Health Schools and Federal University Hospitals surveyed, highlighting heterogeneity among the systems, with diverse languages that do not allow for interoperability.

Chart 1 – Tools used to record management activities in Public Health Schools and Federal University Hospitals. Florianópolis, Santa Catarina, Brazil, 2025.

Institution Identification	Type of tool used
H1	Excel® spreadsheets
H2	Excel® spreadsheets
H3	Google Docs® and Excel® spreadsheets
H4	Excel® spreadsheets
H5	Did not report tool usage
E6	Excel® spreadsheets, Academic Management System – SGA (<i>Sistema de Gestão Acadêmico</i>) (in implementation)
H7	Did not report tool usage
H8	Excel® spreadsheets
H9	Excel® spreadsheets
S10	Did not report tool usage
S11	Teaching platform
S12	Excel® spreadsheets
S13	Excel® spreadsheets, Google® Drive, SINAR (Controle MEC), SIG-RESIDÊNCIA (Financial Control/MS), SISESG (Academic Management System/SESG), Electronic Information System (<i>Sistema Eletrônico de Informações</i> – SEI), EducaSaúde (Moodle Platform), FORMSAÚDE / SESG (replaces FORMSUS)
H14	Excel® spreadsheets
H15	SEI, Excel® spreadsheet, SIEX Platform from the Extension Dept.

Chart 1 – Cont.

Institution Identification	Type of tool used
S16	Google® Docs, Goole Forms®, Sheet®, Microsoft Teams® and Office 365®, Check in Serpro, SEI
H17	Excel® spreadsheets
H18	Microsoft Forms® and Excel® spreadsheets
S19	Excel® spreadsheets, Microsoft Word®.
H20	Virtual Learning Environment (VLE), Excel® spreadsheets, SEI.
H21	Moodle, Microsoft Teams® and Google Meet®.
H22	Did not report tool usage
S23	Computerized system that enables the inclusion of internship positions by healthcare services and positions by universities.

Source: The authors, 2025.

The diversity of technological resources cited highlights the need for a specific tool for CHE management. Only one institution indicated the use of a computerized system, which facilitates interaction between the two sectors and promotes transparency in the registration and monitoring process of internship activities, optimizing the control and management of relevant information:

The system allows health institutions to post internship opportunities, as well as for universities to access and acquire those positions (S23).

Although various technological tools were used, four managers did not mention their use, and one appeared to use paper records:

The use of paper records can result in information being lost (H21).

Among the responses, suggestions were also made regarding the implementation of a system that standardizes internship management, with emphasis on control:

We need a system that shows the number of vacancies per hospital/unit/sector, the number of internships in progress, their estimated completion date, and how many vacancies are available (S6).

Creation of a specific system/program for distributing and monitoring internship openings (S13)

Creation of a system where we can view openings, needs, generate reports, etc. (S6).

The implementation of a dedicated technology that includes the necessary functionalities for managers may facilitate the organization of information and contribute to a more dynamic and integrated learning environment, benefiting students, professionals, and users of healthcare services.

DISCUSSION

The dataset analyzed indicates that the activities developed by most participating institutions are aligned with the concept of CHE advocated by the PNEPS, reflecting their role as educational institutions. The managers' statements reveal a diversity of educational offerings that meet the assumptions of the policy⁽¹⁾, incorporating elements present in the guidelines, clearly demonstrating the importance of professional training within the SUS, aiming to meet the needs of practice.

The participants' statements can be reinforced by authors who address the topic regarding the conceptual incorporation of CHE in hospitals, as well as the importance of practical experience from academic training, providing meaningful learning. This favors the sharing of academic and professional

experiences through collective experimentation, in addition to fostering interpersonal relationships and the participation of all stakeholders⁽¹⁸⁾.

More specifically, the integration of future professionals into practical settings is based on the active participation of workers and students, who play and will play central roles in formulating proposals that address issues related to daily work, management, care, and health education⁽⁵⁾. This approach values the experience of those involved, aligning the educational process with the realities faced in the service.

This articulation is one of the fundamental aspects guiding the incorporation of this concept, ensuring that the knowledge and skills acquired by health professionals, both during training and in practice, are applicable and meet the realities and needs of users. This underscores the importance of reflecting on health practices and expanding dialogue through the promotion of spaces for collective discussion aimed at improving the health of the population⁽¹⁹⁾.

Regarding teaching-service integration, it is worth noting that during the development of internship activities, beyond the consolidation of learning, there is a mobilization of service routines and professionals, generating changes in work contexts as well as knowledge enhancement. Therefore, a two-way street is established, in which education and service, when articulated, improve care, responding to the guidelines set forth in the PNEPS^(20,21).

Although managers referenced this concept in compliance with the guidelines, conceptual aspects still require strengthening. Some statements in the first category revealed a superficial understanding of the topic and a conceptual misalignment, in which CHE and Continuing Education (CE) are treated as synonyms, evidencing a lack of clarity in their definitions^(22,23). This lack of differentiation indicates the need to broaden understanding of the concept among some of the managers interviewed.

The diversity of participants, even among those from the same agency, highlights the importance of strategies that strengthen management in the healthcare sector. This diversity can result in different levels of knowledge and experience, as well as professional profiles, reinforcing the need for educational initiatives in healthcare⁽²⁴⁾, especially to strengthen knowledge regarding the theoretical and practical aspects of the PNEPS.

It is also worth noting the importance of work based on policy indicators, aligning them with its assumptions, which can contribute to the improvement of institutional processes and strengthen health management. By adopting and monitoring indicators, it is possible to identify areas needing improvement, assess the effectiveness of implemented actions, and ensure more informed and evidence-based

decision-making. Indicators also serve as tools that can contribute to the improvement of institutional processes and the strengthening of health management^(23–25).

Authors highlight, among other factors, the importance of developing competencies through educational initiatives⁽²⁶⁾. The CHE reinforces continuous learning in the daily work of healthcare as a learning space for patients, family members, caregivers, healthcare professionals, teams, and managers, being fundamental elements for knowledge development and transformation of practices in this sector.

Based on the above definition, it is understood that professional training is an essential pillar, as it enables ethical and effective practice. These strategies strengthen governance and ensure that decisions made meet the needs of the population, corroborating the conceptual framework used.

Other initiatives aimed at consolidating its concept must involve effective coordination between the various professional practice areas. This coordination must include representatives from the training, management, and social control sectors, with the aim of expanding discussions on proposals aimed at improving work processes in healthcare institutions. The integration of these different stakeholders is essential to bringing the CHE philosophy to life within the SUS, as it fosters a collaborative environment where knowledge and experiences are shared and valued^(27,28).

Teaching-service integration emerged as a highly significant topic for this analysis, as it is fundamental to promoting practices that truly meet the needs of the social context and to training professionals better prepared to act critically. Considering this integration, Higher Education Institutions (HEIs) and healthcare services are encouraged to innovate their teaching and learning processes, seeking to develop professionals who become critical, reflective, active, and protagonists in the construction of their own knowledge during their training. These elements facilitate comprehensive care for patients and families, developing greater technical and scientific skills, along with the promotion of quality in healthcare delivery⁽²⁹⁾.

This analysis highlights the role of SUS educational structures, such as PHS and technical schools. These institutions play a significant role in shaping policy, both in their conceptual foundations and in their organizational structures⁽⁶⁾.

According to the literature, the practical involvement of students through these institutions, from the early stages of training, enhances learning by bringing them closer to the realities of healthcare services. This approach is essential for training that is aligned with the demands of the system and the complexity of healthcare, establishing a connection between education, services, and the community^(29,30). Studies show that integration benefits both academia and the SUS

network's health services, while also promoting greater safety, effectiveness, and quality of care^(18,19).

Among the potential strengths in management of CHE identified in the study, communication stood out as an essential approach for the effective development of practical activities and the achievement of pedagogical goals. A model is needed that promotes not only the exchange of information but also the collective construction of knowledge, involving managers, professionals, and users in training⁽²²⁾. It is noteworthy that strategic policy axes such as participation, social control, and participatory management regarding training, communication, and knowledge production can facilitate CHE management in healthcare institutions⁽¹⁾.

Regarding the challenges mentioned in the results, it is up to the institution and the manager to organize the work process to ensure students receive a planned practical experience without compromising the progress of healthcare delivery. For example, through the management of physical spaces, student rotation by area, and residency schedules, topics that can benefit from the use of technology.

The diversity offered by rotating through different practice settings allows students to have experiences more aligned with the realities they may face in their professional careers. This approach values interdisciplinarity and teamwork, enriching health education. The role of the instructor as a facilitator of the teaching-learning process is essential, as it encourages the development of critical thinking, decision-making, clinical reasoning, and the construction of meaningful knowledge⁽³¹⁾.

Another challenge identified is the implementation of educational activities within hospital units. The literature also points to several contributing factors, such as the need for appropriate environments, the availability of professionals to lead activities, and the organization of the units to allow for staff participation. Another important aspect is the need to promote greater awareness of the relevance of this topic among all involved⁽¹⁸⁾.

The implementation or qualification of CEC in FUH can be a relevant strategy for improving healthcare delivery, in line with the principles of the SUS, especially in strengthening patient safety and striving for quality and effectiveness of care provided^(29, 30).

The presented context highlights the need for technologies to support CHE management. Therefore, the development of a tool is proposed to standardize information, allow for monitoring, and ensure data security, thereby supporting decision-making based on reliable information. Such a solution could benefit FUH and PHS and is aligned with needs identified in other studies, which emphasize organization, financial and structural planning, communication restructuring, information management, and challenges in managing

health residency programs^(8,32). This implementation may facilitate the organization of information and contribute to a more dynamic and integrated learning environment, benefiting students, professionals, and users of health services. This statement is supported by recent studies indicating the benefits of technology in the fields of health management and training⁽³²⁻³⁴⁾.

It is also worth highlighting that technologies can facilitate the monitoring and evaluation of activities. Authors point out that these strategies are essential for understanding and strengthening health training aligned with the policy^(35,36). They can enable the operationalization, monitoring, and evaluation of activities, and be accessible to all actors involved in the process, including users, health professionals, and managers. Additionally, the use of technologies can optimize processes and enhance the effectiveness of health education initiatives⁽³³⁾.

To achieve this, investment and encouragement in a culture of innovation are considered fundamental, with the reorganization of the work process being a viable strategy to improve the quality of management and care provided within the SUS⁽³⁰⁾, considering the challenges evidenced by the research.

This need reinforces the importance of investing in technologies to enable the transformation of practices and overcome current challenges. Although the data clearly demonstrate the need for technology in CHE management, proposals for change in this area should be based on policy, as it represents an important strategy for improving the work process^(29,30).

The scarcity of publications that establish a link between the teaching-learning process and the use of management tools in health has already been identified, which highlights that the adoption of tools in this context is still in its early stages, making investments in this area essential⁽³⁷⁾.

Data collection via electronic questionnaires enabled a broad representation of managers from various areas in Brazil. However, while convenient, it has limitations, such as the lack of interaction between researchers and participants, which can result in superficial understanding and a lack of emotional and contextual nuances.

It should be added that the study may not have fully encompassed the perspective of implementing the PNEPS in FUH and PHS. This limitation may result in a partial view of the difficulties and challenges faced by managers and professionals in implementing this policy, overlooking relevant aspects such as the diversity of institutional realities, the specificities of educational practices, and local training needs.

Regardless of these limitations, the results presented point to the need for improving the technologies used in the

work processes of the institutions studied. The knowledge generated will be used to support the development of a tool that facilitates work processes in locations where curricular internships for undergraduate and professional training courses are conducted, as well as medical and multiprofessional residency programs in the health field.

■ FINAL CONSIDERATIONS

The findings of this study highlight the lack of standardization in CHE management, even among bodies within the same public agency. Additionally, there was a lack of a dedicated system for academic management of internships in professional education, undergraduate programs, and residencies. Excel® spreadsheets are the main tool among managers for recording and tracking activities. This scenario highlights the need for the development and adoption of a specific technological solution that supports the organization, standardization, and monitoring of processes, in addition to enabling integrated communication between educational institutions and practice settings. It is expected that this will reduce rework and ensure greater data integrity and security.

As future perspectives, it is imperative to invest in and maintain strategies that consolidate SUS guidelines, revisiting and respecting their concepts, and highlighting their importance in the training of healthcare professionals. Even after 35 years since its creation, progress is still needed, such as strengthening the PNEPS, constantly reaffirming the importance of teaching-service integration so that health training positively impacts the care and assistance provided to users. In addition to promoting incentive programs, which should be widely disseminated, it is suggested that innovative practices, including new technologies, be developed and implemented to support the management of these initiatives.

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■ Data and material availability

Access to the dataset is available upon request from the corresponding author.

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