The objective of this research was to analyze the state of the art on integrated, multiprofessional and professional Health area residencies through an integrative bibliographical review, from 2006 to 2016, in Portuguese, English and Spanish. 109 articles from Brazil, Canada, USA, Spain and Africa were analyzed. Among the results, it was showed that the main motivation to perform the residency is the need for specialization required by the labor market. The residency experiences in the United States and Canada are in the professional area, having a complementary character to the undergraduation and they emphasize training for research and teaching. In Brazil, the residencies in health represent projects of education through work to overcome limitations of the undergraduation. The purpose of a multiprofessional residency is to train qualified professionals for collaborative interprofessional practice, consistent with the Brazilian National Health System (SUS) guidelines.

Keywords: Nonmedical internship. Graduate education. Multiprofessional residency. Residencies in health.
Introduction

The Residencies in Health in Professional Area (RAP), in the Multiprocessional (RMS), Uniprofessional (RUS), or Integrated (RIS) modalities, are configured as an invitation to the training of health professionals in Brazil for the Brazilian National Health System (SUS). In this training, it is not only thought of “being professional”, but in “being a historical subject”, a citizen who is involved in the social processes experienced. This implication should be facilitated by a formation focused on the transformation of reality and to the confrontation of dilemmas and challenges posed daily¹.

When discussing the possibilities of Permanent Health Education (PHE), Health residencies are shown as a relevant formative process and one of the axes of action of the National Policy of permanent education in health². The experience of residency programs in health is set up as a way of enabling the search for integrality in health. To participate in a formative process that is based on the articulated construction of different health professions, seeking to build a common knowledge, where the contributions of the different professional groups are added, effectively, in fact, a renewing practice in health³.

In Brazil, a national decree defined in 1977 the creation of the medical residency, graduate mode Summer Sense, characterized by the training in service. Over the years, it has come to be considered the “gold standard” in medical specialization. The proposal for a Multiprofessional Health Residency first emerged in Brazil in 1978, when in Rio Grande do Sul a program was created, and which aimed to train professionals with an integrated vision of health and with a humanistic and critical profile. Since the 1990s, under the guidance of the Participatory Health Forums and as an important strategy in the search for integrality, different RMS programs begin to emerge⁴.

From 2003, there was a greater interaction between Education and Health, with the intention of the government to offer multiprofessional vacancies to the maximum of professional categories, as a way of encouraging teamwork and the construction of integral care in health training. In this year, it was also created the Secretariat for job management and health education (SGTES), secretary of the Ministry of Health (MS), to manage specifically the training of human resources in health⁴. Then, in 2005, law 11,129 and the Inter-ministerial Ordinance MS / MEC No. 2117 establish the Multiprofessional Residency in Health and the Residency in Professional Health Area⁵.

By RMS We can understand the programs in Graduate Teaching Mode Latu Sensu, intended for the health professions, except for medical, in the form of specialization course, characterized by teaching in service, with hourly workload of 60 hours per week, minimum duration of two years and in a scheme of exclusive dedication and may include all health professions⁶. In 2014, an Inter-ministerial Ordinance also included Medical Physics and Collective Health⁷. To be characterized as RMS, the program must be constituted with at least three of these professions⁶.

In the initial laws that regulate such modalities of Residency in Health, the terms “Multiprofessional Residency” and “Professional Area” (for a health profession) are used, differentiated from the existing “Medical Residency”. From 2014, the National Commission for Multiprofessional Residency in Health (CNRMS) referred to those as “RAP”, differentiating its modalities in “Multiprofessional” and “Uniprofessional”. The term “Integrated Residency” appears as a model of thinking and creating residencies, which is only found in some programs, but has not yet been adopted by CNRMS.
It is important to mention that in this work we chose to use the terms derived from the creation policy (RMS and RAP) because they are more commonly found in the national scientific literature. And we have included the term RIS because it is the result of a program to which we have been linked and for believing in its integration potential.

In discussions held at a national meeting of Residencies, with the participation of coordinators, preceptors, supporters and multiprofessional residents of existing programs in Brazil in 2006, it was concluded that such programs presented a great variety of methodological designs, but all of them, in unison, defended the use of active and participatory methodologies, and EPS as the central pedagogical axis.

The increase in the number of RIS / RMS / RAP in recent years leads us to think about the importance that these postgraduate programs are having in the training of health professionals in Brazil, since each year new programs are authorized. From this, we had the general objective of analyzing the state of the art of Integrated, Multiprofessional and Professional Occupational Health Residencies, from 2006 to 2016, in Portuguese, English and Hispanic languages.

**Methods**

This research was part of the master’s dissertation of the main author, where an integrative review of literature was carried out (ILR) rescuing what has been produced on RIS / RMS / RAP in the Brazilian and international scientific literature, from 2006 to 2016, based on scientific articles identified in the databases SCIELO, LILAC, MEDLINE and Portal of Periodicals of CAPES.

We define as search descriptors of the articles, based on a query performed in the Medical Subject Headings (MeSH) and in the Descriptors in Health Sciences (DeCS): “Non-medical internship” and “Post-graduate education”; “Multiprofessional residency” as an uncontrolled descriptor. And we include, from the suggestion of Dallegrave and Ceccim, the term in Portuguese “Residências em saúde”. In English, we use the terms “Internship, nonmedical”, “Education, graduation”, “Multiprofessional Residency” and “Residency in Health”. And in Spanish, “Internado no Médico”, “Educación de Posgrado”, “Residencia Multiprofesional” and “Residencia en Salud”.

We used a matrix to analyse the articles, adapted from a validated instrument, composed by title of the article, periodical where it was published, year of publication, authors and location, keywords, research question, objectives, study subjects, methodology employed, main results, main discussions, main conclusions and future research needed.

From the search carried out, 1306 results were found, but only 109 were within the established inclusion criteria: a) Articles published in scientific journals; b) papers which research object refers to Residency in Health programs, RIS / RMS / RAP modalities; c) published in the period 2006 to 2016, in Portuguese, Spanish and English. And defined as exclusion criteria: a) letter-type publications, reviews, editorials, books, book chapters, and newsletters; b) Articles that were not available online, free of charge, in full format for analysis.

As a tool for the analysis of qualitative data, the Thematic Analysis was used, which consists in discovering the core sense of a communication. The Thematic Analysis has the notion of theme as a statement about a particular subject. The theme is a unit of
signification that frees itself naturally from an analyzed text, according to the theory
that serves as a guide\textsuperscript{12,13}.

The various themes were extracted from the scientific articles from three stages\textsuperscript{13}: in the “pre-analysis” of the material, we carried out the floating reading of the selected
articles, being possible to learn about the main issues addressed in the studies and to fill
in the general aspects of the analysis matrix, which brought clippings of the texts in the
registration units already presented. The “exploration of the material” occurred after
a detailed reading of the analysis matrices, and later, the classification and aggregation
of the data occurred in thematic dimensions, from similar senses. The “treatment and
interpretation of results” was based on the thematic dimensions, which we interpreted
and inferred through theoretical contributions, which gave support to the study.

In this article, we will present the thematic dimensions that address the assigned
meanings and the didactic organization of the RIS / RMS / RAP programs. The
thematic dimension “didactic organization of residencies” was divided into three sub-
themes: Implementation and organization formats of Residencies in Health; Teaching-learning concepts and evaluation methods; and, Preceptory and mentoring.

**Results and discussions**

**Meanings attributed to residencies in health**

In this thematic category, the main contents concern the perceptions, social rep
resentations and ideas associated with the RIS / RMS / RAP programs. Here are
presented the main meanings attributed to these postgraduate modalities.

RIS / RMS / RAP are growing programs in Brazil and are consolidating due to
their learning format, adding teaching and service, aiming to train qualified profession-
als focused on interprofessional work and guidelines for work in the SUS\textsuperscript{14,15}. RIS /
RMS / RAP work with immersion “in” and “by” work\textsuperscript{16}.

The objective of the Residency programs is to enable health professionals to better
act in a globalized world, which requires new forms of work and actions consistent
with new technologies and needs\textsuperscript{17}. In a research on motivation to attend the Residen-
cy, all residents entered the program due to the need for specialization required by the
labor market\textsuperscript{18}.

The RIS / RMS / RAP “add several fields of knowledge and are based on teaching,
research and intervention, involving public and private institutions in all regions of
the country” (p. 348). These programs present as main challenge the overcoming of
limitations arising from the original training of professionals, contributing to a contex-
tualized and committed action with SUS\textsuperscript{19}.

In research conducted on an integrated residency program in health, one of the
goals was to train professionals to become scientific, political and technical leaders.
Thus, it is clear the purpose of preparing professionals to take care spaces in the health
services, programs and policy management, in addition to being actors in the construc-
tion of knowledge\textsuperscript{20}.

We can also think that RIS / RMS / RAP should be established as intersectoral co-
operation programs, to favour the qualified insertion of young health professionals in
the labour market, creating a new culture of intervention. This can sometimes occupy a place of dispute in the services, with the trainees of the different undergraduate courses that also occupy the same physical space, insufficient, or even with employees who feel threatened, inconsiderate, harassed and invaded. The activities carried out by the residents can, in some cases, appear similar to those developed by graduate students in supervised traineeship. That can generate a dubiety in the role of resident.

To refer to the Brazilian MSY, Dallegrave and Kruse affirm that the words “innovative construction”, “creating new health practices”, “changing living conditions”, “changing social structure”, “new project for health and society” (p. 218). In Canadian research, most participants in a Pharmacy Residency program indicated that in-service learning projects complement college programs; the Residency led to a greater awareness of research needs; there was an increase in their own knowledge; and, communication skills have been improved.

Didactic organization of Residencies in Health

Implementation and organization formats of Residencies in Health

The enrollment of professionals in the RIS / RMS / RAP programs in Brazil can occur through the following steps: I) objective test (containing questions divided between specific and common knowledge), II) curricular evaluation of the professional and III) interview or practical test. But there is no standard on this selective process, which may vary.

In the American context, the selection format for residency vacancies was described, including interviews, requirement to be linked to a recognized educational institution and the student’s overall grade. A reliable evaluation form was also developed for candidates during selection interviews.

In an American Nursing Home program, nurses from all over the country are interviewed and selected to receive a one-year scholarship. The Residency includes a full-time postgraduate experience of 40 hours per week and every candidate must already have a master’s degree in Nursing Sciences.

In a US survey that investigated 33 one-year pharmacy programs, 78.5% allow residents to rotate to other locations if specific experiments are not available on the service itself; 87.9% of the programs require that residents have experience in basic life support; 84.8% of the programs allow their residents to perform preceptorial functions with students, and 72.7% offer an internship in teaching. In addition, most programs had a compulsory elective component and required residents to submit research project results.

In Brazil, the Pedagogical Project (PP) of RIS / RMS / RAP must be in line with PNEPS. In a study on RMS and PP, a variety of terms related to the “multi” and “inter” prefixes and to the “professional” and “disciplinary” adjectives were found, and no PP presented the definition of these terms and conceptions. The results did not show uniformity among the programs, revealing a range of formats of didactic and pedagogical organization, and several evaluation systems.
It is essential to have the articulation of coordinators, managers, tutors and preceptors, to draw up a teaching-learning proposal in the service, through strategies that allow the resident to immerse themselves in the places of production of care and placing the workers the continuous exercise of analysis of the meaning of practices, leading to the establishment of questioning and resignification actions.

Workers in the health care network sometimes do not participate in the implementation process of the Residencies, and many residents, when they arrive at the units, find great resistance from the team, which, for the most part, knows little about the program and lives with a reality of equipment scrapping and devaluation of professional work.

At the time of admission to the Residency, it may be interesting that, initially, the resident group goes through a period of observation, so that the interventions can be based on the needs of the population. Given that the initial lack of preparation to deal with the various demands may require the residents to make greater effort and disposition, at a time of support and teamwork to the construction of references used in their training.

The need for a “territorial diagnosis” or “territorialisation”, which is one of the basic assumptions of the work dynamics of the Family Health Strategy, is described in order to plan and develop effective interventions, knowing the community, available resources, existing demands, reality of users, families and the teams themselves.

The activities carried out by the residents can be organized so that 50% of the work period is dedicated to team activities and the other 50% to the specific activities of each profession. A monthly production worksheet can be compiled to compare the impact of residents’ work on services.

In another research, the RMS program is handled jointly by the professionals that integrate the teams. Complementing with a weekly collective process, where residents, tutors and preceptors can discuss clinical cases, for reassessment of the conduits, and proposals for new actions.

The important thing is that residents can work at levels of health promotion, disease prevention, early diagnosis, therapeutic adherence, reduction of injuries, palliative care, rehabilitation, development of clinical, epidemiological and social research, seeking interdisciplinary, intersectoral and interinstitutional actions that allow access to the knowledge required by the specificities of care.

Health institutions and services linked to RIS / RMS / RAP training need to make constant exchanges of experience to qualify training and health work. Residents also need to participate in scientific, academic, social and educational activities.

Finally, an interesting strategy in the organization of RIS / RMS / RAP programs concerns some weekly hours for the meeting of the residents collective itself. This collective must be coordinated by the residents themselves and can carry out various thematic activities, or playful, and political.

Teaching-learning concepts and evaluation methods

How can it be possible that professionals from different specialties are formed based on a common axis? In fact, many institutions in Brazil still favour a disciplinary...
health model, with priority for specialized training, organized under the “Flexnerian” aegis, in a fragmented, mechanistic, Cartesian and biologically centred model\textsuperscript{19,21,43-46}.

It is then considered as social change, specifically in health policy, “to materialize the paradigms of ‘making health’ linked to social determinants and denying the Flexnerian reports” (p. 17)\textsuperscript{45}. This fragmented, repetitive and routine work is being replaced by new forms of organization, in a multipurpose work, integrated in a team, with more flexibility and autonomy, a training space in the process of construction, uniting problematizing learning, work and politics\textsuperscript{19,45}.

The work process involves organizational, technical, social and human dimensions. Organizational and technical knowledge are just some of the aspects involved in the transformation of health practices. The training of professionals should involve social and human aspects, such as values, feelings, world view and the different visions about SUS\textsuperscript{47}.

The curriculum of the RMS course of the Escola Nacional de Saúde Pública of Fundação Oswaldo Cruz (ENSP / FIOCRUZ), for example, is based on the methodology of competency-based curriculum building (knowledge, skills and attitudes), reflective articulation between work and training\textsuperscript{48}.

Significant learning is also a fundamental principle of RIS / RMS / RAP, referring to a pedagogy that proposes to the health professional a more active role in the process, potentially more significant and related to previous experiences. In a significant context, it is believed that the resident is able to exercise the development of reasoning, criticism and transformation, becoming an integrating subject and participant of his formation, strengthening his consolidation as a political actor\textsuperscript{17,30,42}.

RMS can be considered a strategy of interprofessional health education (IHE). In IHE, students from two or more professions learn interactively and engaging with group members about their professions and there is a commitment among the individuals involved in seeking problem solving and negotiation in decision-making in a collaborative perspective. The authors who discuss IHE affirm that it presents itself as an important strategy to train professionals able to work in teams, an essential practice for the integrality of the care\textsuperscript{38}.

The RIS / RMS / RAP, as an intercessory space for the development of EPS actions, IHE, meaningful learning and interdisciplinarity, can foster the meeting of Residency members through seminars, tutorials, theoretical classes, field activities, building relationships and interactions between them. The meeting between professionals, residents and users, where the production of care is developed, is a scenario for pedagogical production, allowing the exchange of affective and cognitive knowledge\textsuperscript{30}.

The pedagogical guidelines of the RIS / RMS / RAP programs should adopt methodological strategies that transcend the classroom, taking the residents to practice and enabling interdisciplinary activities in different professional areas, putting them in contact with themes such as Humanization, EPS, Work in Team and Integrality, among others\textsuperscript{40}.

It is clear the importance of the guiding principles of the teaching-learning process of RIS / RMS / RAP programs, especially in the context of education in service, the expanded health concept and PNEPS. However, the fact that the teaching-learning conception has the scenario of in-service education does not necessarily guarantee the construction of transformative knowledge\textsuperscript{21}. 
The problem-solving methodology can be used, a teaching strategy that envisages the formation of more active, meditative and questioning professionals capable of working in teams and learning together. The reflection process triggers a search for explanatory factors in terms of solutions to problems. The contents are reconstructed by the residents, who need to reorganize the materials and adapt them to their cognitive structures.

Discussion groups or seminars are facilitators of the teaching-learning process. Since one of the main pedagogical spaces are the moments of discussion of the practice in small groups next to preceptory and tutoring. It is understood that these small groups are important for the expression of the subjects are spaces for collective syntheses and for the year of new conformations of teacher-student relationship and triggers this reflective process should be issues and problems of reality.

Reflective journals can be used, with reference to the field journals of Anthropology, as an instrument of notes, impressions, observations and early theorizations; and the reflective portfolio of Education as a biographical narrative. The reflective diary can be the main support for orientation meetings and residents can present it monthly, reporting their daily lives in the learning scenarios.

The use of case studies is also feasible, a procedure usually used to understand the complexity of the patient’s presentation and to plan the intervention. Thus, it must integrate the different areas of knowledge, so as to favor the individuality of each individual and situation, implying the realization of a direct and careful observation.

In a Canadian experience, definitions of “learning styles” are presented as a characteristic of cognitive, affective, and psychosocial behaviors, which serves to indicate relatively how students interact with the learning environment. Learning styles can change from the experiences, and realizing the style of a student can help in the teaching-learning process. An American Pharmacy Residency program uses Bloom’s Taxonomy (knowledge, understanding, application, analysis, synthesis, and evaluation) in organizing its goals.

In addition to uncertainties in the pedagogical and methodological field, there may be a void in the field of evaluation, either due to lack of minimum parameters or by the incipience of methods and instruments. And this can be a problem for the development of RIS / RMS / RAP. With regard to evaluation methods, the existence of reliable instruments is important both for decision making and for the elaboration of effective interventions to improve the training of professionals. The instruments must be adapted to the local needs, being important a periodic revision of the models, aiming their adequacy to contemplate new aspects.

The use of evaluative portfolios, aiming to provide a medium and long-term record of the evolution of performance and the evolution through the activities, allows a more concise and reliable evaluation of the skills acquired by the resident during a certain period. The portfolio is a learning tool that “enables a critical-reflective thinking of the resident, which makes the reflection process as the main component for professional growth, with a view to changing traditional practices” (p. 111).

In an experience from Spain, the main objective of the assessment is to optimize residents’ learning, providing motivation and guidance. The main method of evaluation in this country follows the model of a regulation of the Ministry of Health, being a continuous evaluation form, where the resident is qualified in a scale of 0 to 3
in five dimensions of knowledge and skills, and in seven dimensions of attitude. Some places also request an annual memorial, called the “Resident’s Book”, which records the fulfilment of procedures, techniques and merits, as well as interviews and letters of self-reflection57.

**Preceptory and tutoring**

RIS / RMS / RAP, as learning models in practice, make it possible to raise awareness and introjection of interprofessional work for both residents and others involved: tutors, preceptors and managers32. There is a double learning condition in the work by means of the Residency in Health programs: that of the resident professional and that of the professional preceptor10.

This actor needs to master the clinical practice, as well as the pedagogical aspects related to it, and this dynamic has the support of the tutor, who acts as an academic advisor, directly responsible for the implementation of the pedagogical plan58.

It is essential the role of the preceptor in favor of the articulation of teaching-service17. In this sense, not recognizing the teaching process as inherent in practice can lead the preceptor to simply delegate his activities to the resident and not establish a true pedagogical relationship. It is necessary that the preceptor understands that, as an educational practice, his activity demands planning, competence and creativity. The preceptor and the resident share the teaching and learning from the exchange of experiences, reflections on the practice and reconstruction of knowledge in real scenarios58.

Preceptors need to recognize that there is a dialectical process of teaching and learning, carried out with an educational and pedagogical perspective that goes beyond the mere transmission of knowledge, in such a way as to allow residents to acquire applicable knowledge in situations considered complex and contradictory45.

The success or failure of learning in RIS / RMS / RAP can be based on affection, trust, empathy and respect among residents, preceptors and tutors17. After all, knowledge is also made in the field of interpersonal relations, in a constant dynamic between teaching and learning59, and the preceptor assumes a mediating role in this process17,60.

There are limits and potentialities in this process, there are limits of personal, professional and institutional order. The poor perception of preceptors about their educational role, for example, can be a critical factor of Residencies in Health44. Being the collaborative practice and the exchange of knowledges identified as the main facilitators of the work in RIS / RMS / RAP32.

One problem to be faced is that the learning needs of the residents sometimes do not match the view of preceptors and tutors. It is important to recognize these actors about the resident’s current needs45. The lack of training, motivation and working conditions as well as the lack of ethics of some residents may also be factors that impact preceptors, regarding the issue of teaching and learning60.

The didactic-pedagogical foundation for the exercise of preceptorship, a unanimous need among the preceptors, can include the themes stemming from the main demands of these, especially the reflection on their role, rights, attributions and responsibilities, teaching techniques, evaluation of learning and problematization of knowledge61.
Final considerations

In this study we aimed to assess the state of the art RIS / RMS / RAP, from 2006 to 2016, in Portuguese, English and Hispanic languages. We present the thematic dimensions that addressed the assigned meanings and the pedagogical organization of the RIS / RMS / RAP programs.

The meanings attributed to the Residencies in Health come from many perceptions: from program coordinators, higher education institutions, preceptors, tutors, teachers and residents, and also from those who write and research on the subject. We show that the main motivation to carry out the residency is the need for specialization required by the labor market. Articles published in the USA, Canada and Spain have reported results of research on Occupational Residency programs, specifically for the Pharmacy and Nursing professions. These programs have a complementary character to graduation and emphasize training for research and teaching. In Brazil the residencies in health represent projects of education through work to overcome limitations of the graduation.

Regarding the Pedagogical organization of the Residencies, many articles have raised important questions about how to conduct teaching-learning processes in service, highlighting the use of active learning methodologies such as problematization and small group work. The structuring functions of the preceptor and tutor were highlighted, as well as the articulation of the programs with the regional realities. As a methodology for the evaluation of residents, the use of the Reflective Portfolio and other more traditional evaluation models was mentioned, carried out by preceptors and tutors.

The health education is still a “critical node” of the proposals that are committed to change the care model in health in Brazil. We highlight some challenges for the teaching-learning process in the concrete contexts of SUS: lack of dialogue among professionals, preceptors and tutors; lack of preparation for collective work, including for the production of knowledge; lack of professionals with profile and availability for preceptory / tutoring. In addition, it is common in the health area for professionals to act in an isolated, dissociated and fragmented way.

Residencies in heath are vigorous professional training projects with a great diversity of assigned meanings and didactic organizations. New studies will be needed to identify the best strategies for improving education through work proposed by these programs.

As a continuation of the present study, we suggest conducting other research that will continue in the investigation of Residencies in Health, especially on the impact on the training of residents on the health system and its cost-effectiveness; further analysis can be made of other national programs working with Residencies in Professional Areas, or in relation to other international experiences.

Finally, we evaluated that the Residencies in Health have enormous potential for (trans) formation of health workers, and for that, they must be the result of continuous research, targeted by investments of the Ministries of Health and Education, in continuous improvement of human resources for SUS, and long-term, perhaps, are likely to also become the “gold standard” training of health professionals, as already happens in medicine.
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All authors participated actively in all stages of preparation of the manuscript.

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