Residência RP Pediátrica
Publicação Oficial da Sociedade Brasileira de Pediatria
ISSN-Online: 2236-6814

Submitted on: 07/04/2019
Approved on: 07/18/2019

ORIGINAL ARTICLE

Review of pediatric education in medical schools of Recife and metropolitan region: a cross-sectional study

Germanna Virgínya Cavalcanti Silva[1], Luana Freire Góes Lima[2], Camila Esteves Paredes[1], Maria Amanda Londres Lopes Pinheiro[1], Mariana de Freitas Berenguer[1], Jéssica Bezerra Diniz Dantas[2], Jeddson do Rêgo Nascimento[2], Carmina Santos[1,2], Eduardo Jorge da Fonseca Lima[1,2]

Keywords:
Education, Medical, Schools, Medical Pediatrics, Curriculum.

Abstract

Objectives: To describe the curricular matrices of pediatrics teaching in the medical schools of the city of Recife and metropolitan region, analyzing their adequacy in relation to the national guidelines. **Methods:** Cross-sectional study. Data collection was done through a standardized form and the information provided by the coordinators or the teachers in a face-to-face interview. We dealt with aspects related to the hours of undergraduate and pediatric teaching activities; the moment of insertion of pediatrics in the curriculum grid and practical learning scenarios. The sample was composed by the six medical schools. **Results:** The legal nature of the institutions was as follows: federal public 1/6, state public 1/6, and private 4/6. As for the hours of medical school, all schools had a workload of more than 7,000 hours and the workload allocated to pediatrics ranged from 601 to over 1,000 hours. The first contact of students with pediatrics occurred in the first year of the course in four of the institutions, while in others, is introduced at the second and the third year. All institutions carry out the evaluation of clinical knowledge in the first four years of the undergraduate course. **Conclusion:** It was verified that the teaching of pediatrics developed in the medical schools evaluated presents differences in the workload, although the majority ends up contemplating the objectives of the national curricular guidelines. The increase in the workload of pediatrics was related to the implementation of the family health strategy.

[1] Faculdade Pernambucana de Saúde, Graduation in Medicine - Recife - Pernambuco - Brazil.
[2] Instituto de Medicina Integral Professor Fernando Figueira, Medical Residency in Pediatrics - Recife - Pernambuco - Brazil.
[3] Instituto de Medicina Integral Professor Fernando Figueira, Recife, Pernambuco, Postgraduate Latu Sensu - Recife - Pernambuco - Brazil.

Correspondence to:
Germana Virgínya Cavalcanti Silva.
Faculdade Pernambucana de Saúde. Av. Mal. Mascarenhas de Morais, nº 4861, Imbiribeira,
Recife - PE. Brazil. CEP: 51150-000. E-mail: germanna_cavalcanti@hotmail.com

DOI: 10.25060/residpediatr-2021.v11n2-159
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INTRODUCTION

The discussion of the medical professional profile that one wants to form is one of the guidelines that are part of the National Curriculum Guidelines for Undergraduate Medicine[1], with the aim of promoting a humanist, critical, reflective and ethical training, contemplating different levels of health care through health promotion, prevention, recovery and rehabilitation actions[2].

The current National Curriculum Guidelines point to the need for pedagogical changes and, mainly, for the expansion of activities in primary care, in addition to defining minimum workloads and reaffirming the importance of integration between teaching and health services, reinforcing that new practice scenarios must be considered in medical education. [3] These guidelines define that 70% (seventy percent) of the remaining hours of the internship will necessarily include essential aspects of the areas of Internal Medicine, Surgery, Obstetrics-Gynecology, Pediatrics, Public Health and Mental Health, in eminently practical activities and with theoretical workload that does not exceed 20% (twenty percent) of the total per internship, in each of these areas.

In this sense, Pediatrics, as a discipline in the curriculum of medical courses and in the basic area of Medicine, plays an important role in the construction of a professional profile aimed at meeting the needs of the population insofar as it deals with children, adolescents and their guardians in different stages of life[2].

At the end of the 19th century there were only three medical schools in Brazil. Pediatrics conceived as a specialty emerged in this period, when, on the initiative of Carlos Arthur Moncorvo de Figueiredo in 1881, the General Polyclinic of Rio de Janeiro was founded. The following year, the Chair of Clinical Diseases of Children was created at the School of Medicine of Rio de Janeiro. Moncorvo Figueiredo observed the frequent occurrence of childhood diseases, their impact on infant mortality and the advances in these diseases, justifying the need for doctors with specific knowledge of children's pathologies and thus clarifying to the Imperial Government the need to create this discipline[3,4].

With the subsequent institutionalization of Child Care, defined as the set of techniques and strategies that seek to ensure the physical and mental development of children from the gestational period to puberty, the notion of a health-disease process that is not only concerned with to biological aspects, facing psychosocial issues as fundamental elements for a healthy development[5].

After more than one hundred years of medical courses in Brazil, it is verified that pediatrics, with its different denominations, has remained one of the great areas in undergraduate courses. It is also noted that in recent years there has been, in our country, a significant increase in the number of medical schools, today with 336 in operation[3].

In Pernambuco, the recognition of child care as a separate specialty took a long way to be established. In the 1930s, Dr. Armando Meira Lins would lead the first transformations by dedicating himself exclusively to child care. In the same decade, in 1929, the Children's Hospital was created, the place where modern Pediatrics would emerge in Pernambuco and later would give way to a remarkable event: the meeting that would propose the foundation of the Society of Pediatrics of Pernambuco, founded days later by the same Dr. Meira Lins and other important names in Pediatrics at the time. The recognition of the specialty grew with the inclusion of the Chair of Pediatrics in the curriculum of the Faculty of Medicine of Recife, founded by Professor Otávio de Freitas[6].

In 1960, the Instituto de Medicina Infantil de Pernambuco (currently Instituto de Medicina Integral Professor Fernando Figueira) - IMIP was created, led by Dr. Fernando Figueira and representing a social response of pediatricians to the problems of the Northeast, constituting, over these 55 years, a national reference in the teaching of pediatrics[6,7].

The discipline of pediatrics in medical schools in Brazil is addressed, both in the basic stage of graduation (pre-internship) and in internship. So they are divided into mostly theoretical activities in the first stage, followed by a greater proportion of practical activities[1]. Over the six years of training, undergraduates will develop skills and competences to identify needs inherent to different age groups, understanding children and adolescents in their full context, in biological, emotional and social aspects[8,9].

A study published by Puga and Benguigui, in 2003, on the teaching of Pediatrics in Latin American medical schools, showed a median duration equal to 20 weeks or 400 hours, with 33.5% of schools using 100 to 220 hours, 21.7% with workloads between 420 hours and 600 hours and 16.1% of them using from 620 hours to 800 hours.[9] Veiga and Batista, analyzing the percentage of total hours of medical courses devoted to Pediatrics in medical schools in Rio de Janeiro, found a mean of 10.07%, in addition to a median of 9.72% and a standard deviation of 2.72%.[5]

In a survey carried out with medical schools in Brazil by Ciampo and Ciampo, it was observed that the workload allocated to the teaching of Pediatrics in the 90 Brazilian medical courses studied created until 2002 had an average of 876.8 hours, or 10.06% of its total workload, for topics related to the health of children and adolescents.[10] Pediatric teaching should correspond to 10% of the total course load (around 700 hours or more), preferably continuously and progressively until the end of the course.[3]

The study by Veiga and Batista reports that the most frequent topics in pediatrics undergraduate curricula are related to the introduction to Pediatrics, with a focus on anamnesis and physical examination, basic health actions (in particular, breastfeeding), accident prevention in childhood, monitoring of growth and development, care for normal newborns, immunizations and control of respiratory infections and diarrheal diseases, covering the recommendations contemplated in the DCN. On the other hand, topics related to psychomotor

and affective aspects, such as communication skills in the pediatrician-child-family relationship, were not covered in all the institutions surveyed, which goes in the opposite direction of the desired medical training nowadays.[1,5]

Thus, due to the professional's need , in the medical course, to provide good care to children and adolescents , it was noted the importance of evaluating how the teaching of Pediatrics occurs in medical schools in the city of Recife and the Metropolitan Region, comparing their curricular matrices. with the recommendations of the national guidelines.

METHODS

A cross-sectional, descriptive study was carried out among six medical schools in the metropolitan region of Recife-PE during the period from August 2017 to July 2018.

The study population consisted of medical course coordinators and/or professors responsible for the Pediatrics discipline at each institution. Data on the curriculum matrices of the Pediatrics discipline of the courses included in the research were obtained through information provided by the interviewees.

Data collection took place using a standardized form (attached) prepared for the purposes of the study, which was applied in person and consisted of 22 questions, of which 14 were multiple choice and eight were open questions.

The questionnaire addressed aspects related to the total workload of the undergraduate course and activities aimed at teaching Pediatrics during the different moments of the course (basic cycle, clinical and internship), as well as aspects related to the learning objectives, evaluation format, insertion moment of discipline in the curriculum and practical learning scenarios.

The Free and Informed Consent Term (FICT) was applied and the interviewees were instructed about any doubts when filling in the data.

The information was reviewed and typed in double entry, a database was built in Excel (2007 version) and the frequencies were verified.

This work was approved by the Research Ethics Committee of Faculdade Pernambucana de Saúde - AECISA and was carried out in accordance with resolution 510/16 of the National Health Council on research in human beings. The project was approved under CAAE 79956717.0.0000.5569.

RESULTS

All medical faculties existing in Recife and the Metropolitan Region at the time of collection participated in the survey, configuring a total sample of six institutions.

Regarding the legal nature, the institutions were presented as follows: federal public 1/6 (16.66%), state public 1/6 (16.66%), private 4/6 (66%).

Among the medical schools (MS) surveyed, two have pediatricians coordinating the course, one of them in the position of vice-coordinator . Most course coordinators 4/6 (66%) have been in this role for less than five years.

As for the position of coordinator of the pediatrics discipline in the first four years of the course, only one MS does not have this attribution. In other institutions, there is the role of coordinator and the function has been performed by the same professor for a maximum of five years.

The total workload of the Pediatrics discipline and its division during the internship and the period preceding it are described in Table 1. It was found that the total workload of the medical course is over 7,000 hours in all MS studied, being more than 8,000 hours in three of the six institutions evaluated. The workload allocated to the teaching of Pediatrics over the six years of medical course ranged from 600 hours and was over 1,000 hours in four MS.

In four of the six schools studied, the students' first contact with Pediatrics content already occurs in the first year of the course, while in the others, the teaching of pediatrics is introduced at the end of the second year and throughout the third year.

Figure 1 shows the pediatric practice scenarios and the periods in which the initial contact (pre-internship) of students occurs, according to the medical schools studied.

All the institutions studied carry out assessment of clinical competences in the first four years of graduation, being 2/6 (33.33%) in *O bjective format structured clinical examination* (*OSCE*), 2/6 (33.33%) as *Mini-clinical evaluation exercise* (*mini-CEX*), 1/6 (16.66%) uses the Test of skills and competences (THC) and *mini-CEX forms* and 1/6 (16.66%) unstructured or otherwise.

Of the six institutions evaluated, four have students in the pediatric internship and two had not yet started this follow-up, due to the duration of the course. Regarding the duration of the rotations of each area in the internship, two

Table 1. Distribution of pediatric hours throughout the course according to the medical schools located in Recife-PE and the metropolitan region. Recife (December/2017-January/2018).

Workload	Medical School					
	1	2	3	4	5	6
Pediatrics subject total.	> 1000h	> 1000h	> 1000h	> 1000h	901-1000h	601-700h
Pre-internship pediatrics.	201-300h	401-500h	401-500h	> 1000h	501-600h	201-300h
Pediatrics at the boarding school.	> 1000h	> 1000h	601-700h	701-800h	301-400h	501-600h

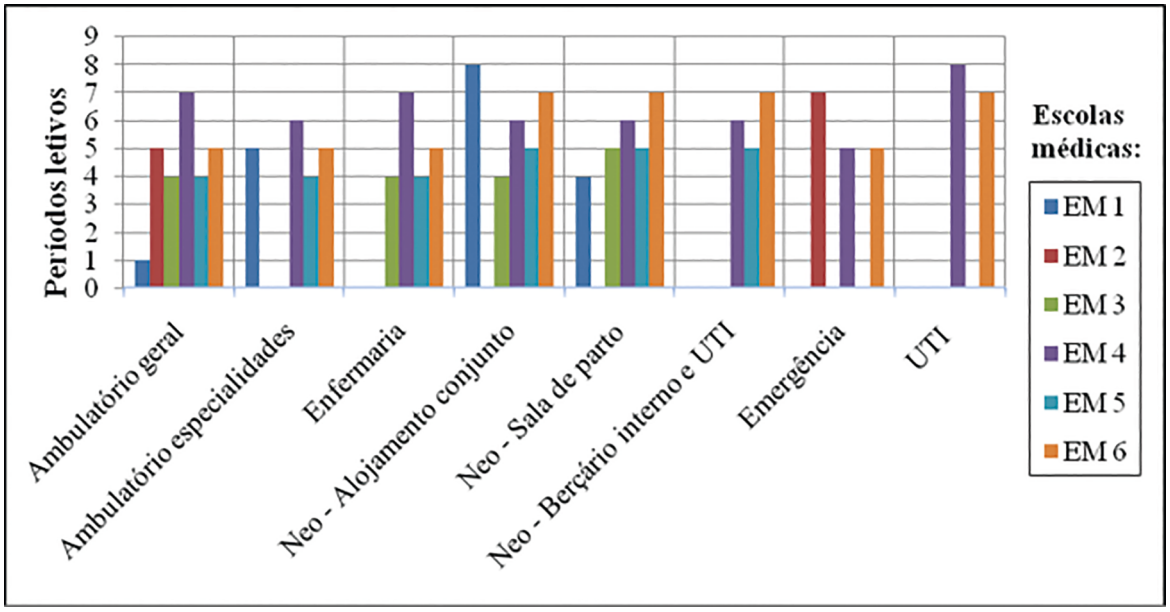


Figure 1. Distribution of academic periods of initial contact with the pediatric practice scenarios that precede the internship, according to the medical schools located in Recife-PE and the Metropolitan Region. Recife. (December/2017-January/2018).

are organized in just a continuous period of about six months in each specialty, three of them in two periods of about two to three months and only one in four periods of about 45 days each. The distribution of activities is represented in Figure 2.

Of the interviewees, five answered that there is already, or that it will still be carried out, the evaluation of clinical competences in the pediatric internship rotations. Of the responses obtained, one institution evaluates through the *mini-CEX* , one through THC and *OSCE* , one through THC and *mini-CEX* and two in an unstructured way or different from the previous ones.

DISCUSSION

The study analyzed how Pediatrics content is approached in medical schools in the city of Recife and its Metropolitan Region. An important aspect for understanding pediatric education in the general training of physicians refers to the workload of pediatrics and its percentage in relation to the total workload of the medical course. It was found that, in five of the institutions, it was longer than 7,500 hours, which is in accordance with what is recommended by Resolution[11] years for its completion.

Regarding the total workload of Pediatrics, it was possible to verify that most (4/6) of the MS studied spend more than 1,000 hours, exceeding the time proposed by the premises and guidelines proposed by the Brazilian Society of Pediatrics, which states that teaching of pediatrics should correspond to 10% of the total course load (around 700 hours or more), preferably continuously and progressively until the end of the course[3].

It was also possible to verify that the total time dedicated to pediatrics teaching during graduation in the MS studied was higher than those found in a research carried out by the Faculty of Medicine of Ribeirão Preto, University of São Paulo (FMRP-USP)[10] and also by Veiga et al in medical schools in Rio de Janeiro[5], in which the average workload for teaching and practicing the subject was 876.8 hours and 870 hours, respectively.

This difference between the workloads can be explained by the large number of new medical courses, which have different organizations in their structure, as well as different teaching methodologies[3].

Regarding the distribution of this workload throughout the training, it is not uniform, with a higher percentage being concentrated in the internship. Still, with these differences in the layout and presentation of the curricula, the DCN provides that the workload of the internship must be distributed in a way that 70% of it is destined to the essential aspects of the great areas of medicine (Medical Clinic , Surgery, Pediatrics, Gynecology and Obstetrics, Public Health and Mental Health)[1].

When analyzing the moment of curricular insertion, the first contact of the students with the contents of Pediatrics occurs in the first year of the course in most MS. This fact can be attributed to the growing acceptance and adherence to the active learning methodology (which favors the earlier insertion of students into practice places), by institutions in the state of Pernambuco, prioritizing contextualized learning from the beginning of training, as well as such as the knowledge that the teaching of pediatrics, initiated in the clinical cycle and complemented, especially, by in-service training at the internship, has as its goals the general education of the

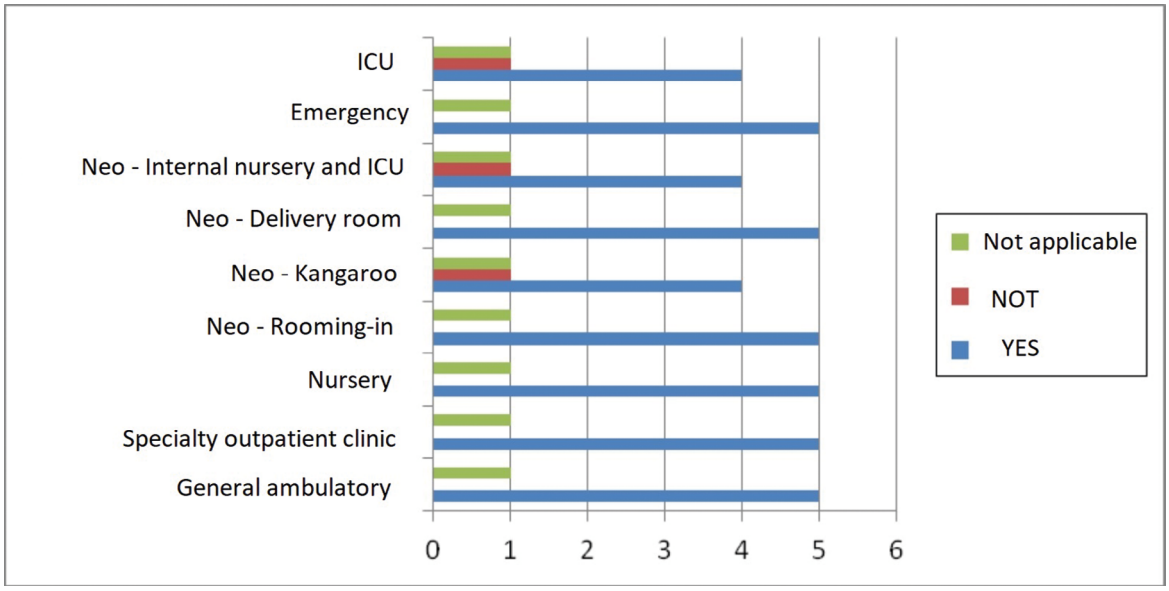


Figure 2. Distribution of pediatric internship activities according to practice scenarios, in medical schools located in Recife-PE and the Metropolitan Region. Recife. (December/2017-January/2018).

physician, with a broad view of the main problems related to pediatric practice.[11]

However, a study carried out in the state of Rio de Janeiro[5] found that more than half of the institutions surveyed insert this content during the third year, while only one institution does so before that.

Regarding the learning objectives of the basic and clinical cycles, despite the structural and organizational differences, there is agreement in the teaching of fundamental topics such as: aspects of pediatric consultation, child anamnesis, assessment of normal growth and development, nutrition, immunization, most prevalent diseases in childhood, newborn care and adolescent care.

These learning objectives address not only the biological aspects of child health, but also the psychosocial ones. However, this more holistic approach towards the child was not fully contemplated in some MS, according to a study carried out in Rio de Janeiro[5].

In all the MS studied, it was observed that the teaching of pediatrics is experienced in different health care settings: outpatient, inpatient unit, urgency and emergency and neonatology. The insertion in these practice scenarios occurs mainly in the clinical cycle (from the third year of graduation), with few exceptions, in which the introduction of some scenarios started still in the basic cycle, so that in all there is contact with activities of relevance for the professional future since the first years of the course.

During the internship, all levels of care should be experienced, focusing on the primary, secondary and urgency/emergency levels, so that there is the opportunity for the student to have experiences in the different learning scenarios and to understand the health policies in the different cycles. of life, organization of practice and work in a multidisciplinary team[12].

The experience at different levels of care allows future physicians to develop an understanding of the child as a biopsychosocial and ecodependent unit ; practice health promotion, disease prevention and family education; monitor child growth, development and nutrition; develop diagnosis and treatment prescription, based on the ability to obtain data through anamnesis and physical examination and knowledge of the diseases prevalent in this life cycle; to be able to perform fundamental diagnostic and therapeutic procedures[11].

It is worth mentioning, however, that even being subjected to practices at different levels of care, when inserted in Primary Care, students have the Family Health Strategy (ESF) as their main field of practice, formed by a team that does not include the presence from a pediatrician. The lack of a pediatrician in the team can compromise the teaching of issues related to children's health, since many physicians who are part of this strategy do not match pediatricians to provide comprehensive and quality care for the health of children and adolescents[13].

The importance of pediatricians in Primary Care was demonstrated in a study carried out in a city in the interior of São Paulo, one year after the implementation of the FHS, it was observed that complaints from the population were almost daily. The medical team and health managers realized that there was no resolution of cases, due to a growing increase in diagnostic errors. It was then decided to also hire a pediatrician to compose the team, promoting an improvement in the promotion of comprehensive care for children and adolescents in this municipality[14].

As for the assessment strategies presented, all the institutions studied have clinical skills assessment in the first four

years of graduation, two of which in the OSCE format (*objective structured clinical examination*). This type of evaluation that verifies the student's performance in controlled situations, based on a predefined script, in which there is interaction with a simulated patient or didactic resources through evaluation stations in rotation[15].

Two MS assess their students through the *mini-CEX* (*mini-clinical evaluation exercise*), which consists of a structured observation of the practice with a verification guide or *checklist* , in which global assessment scores are assigned to various items of attitudes and skills, followed by *feedback* , with a total duration of 20 to 30 minutes, which can be repeated several times for the same student, increasing the validity of the method[16]. A MS uses *mini-CEX* and THC (Test of skills and competences), a MS uses unstructured or different forms.

In order to verify the scope of the determined competences, as well as to give continuity to the teaching and learning process, an evaluation system is necessary. This point is fundamental in any educational institution, because it is through it that internal mechanisms for quality control of the teaching/learning process are developed and the development of fundamental clinical attitudes and skills are monitored[16].

Still regarding the form of evaluation, of the five MS that have the internship in progress, one institution carries out evaluation through the *mini-CEX*, one through THC and *OSCE*, one through THC and *mini-CEX* and two in an unstructured or different from the previous ones.

The importance of evaluative practices is given in the planning of teaching and learning processes because it points out flaws, locates difficulties and allows decision-making. In addition, this activity should support the pedagogical management guidelines and the institutional development plan.

All forms of assessment take into account the active participation of the student, associated with the *feedback tool* that has the purpose of regulating the teaching-learning process, continuously providing information so that the student can perceive if he is distant, or close, from the desired goals and allows the necessary adjustments to be made early, based on the development of students' reflective and self-evaluative capacity. However, *feedback* alone does not guarantee learning without adequate stimulation of the student's cognitive and metacognitive processes[17,18].

In this way, it is concluded that the teaching of pediatrics developed in the medical schools evaluated presents differences in the workload and in the moment of introduction of the teaching of Pediatrics in the curriculum, although most end up contemplating the contents necessary for the general training of the physician in the aspects of child's health.

The Medical Schools studied also showed congruence with the DCN in terms of the minimum total hours required for the course and the performance of activities in practice scenarios focused on pediatrics, at all levels of care.

It was also noticed that one of the reasons for the changes in pediatrics teaching in the undergraduate medical course, mainly the increase in the workload dedicated to Pediatrics in recent years, was due to the implementation of the Family Health Strategy (ESF) as a preferred model in primary care. This strategy still does not include the pediatrician in the team, which brings several difficulties, considering that no professional is equal to the pediatrician in promoting comprehensive and quality care for the health of children and adolescents.

Thus, the absence of a pediatrician in SUS Primary Care incorporates additional issues and challenges involving the professional's performance itself and also for the teaching of pediatrics in the undergraduate medical course and in medical residency.

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