

Repercussions of the 2014 national curricular guidelines on the pedagogical projects of new medical schools

Repercussões das diretrizes curriculares nacionais de 2014 nos projetos pedagógicos das novas escolas médicas (resumo: p. 15)

Repercusiones de las directrices curriculares nacionales de 2014 en los Proyectos Pedagógicos de las nuevas escuelas médicas (resumen: p. 15)

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The Brazilian national curricular guidelines on health education steer curriculum composition so as to organize professional training in this field. Pedagogical projects for courses connect these guidelines to pedagogical practices. This study assessed the repercussions of the 2014 curricular guidelines for the pedagogical projects of medical schools that were created after publication of the guidelines. A qualitative approach was taken, with analysis on documents of these projects guided by critical hermeneutics. Strong alignment between these projects and the curricular guidelines was found. A shift from the Flexner paradigm to comprehensiveness was identified, such that the professional training tended towards the real needs of the population. Differences in the conception of general medical practitioners and in the use of active teaching-learning methodologies were found. Curricular conceptions in which the proposed teaching-service-community integration did not seem to be guaranteed were evident, thus suggesting that proposals based on disciplines had remained present.

Keywords: Medical education. Curriculum. Undergraduate medical education. Higher education policy.

Introduction

Abraam Flexner published a study on medical schools in the United States and Canada in 1910 that produced recommendations for training doctors in which creation of teaching hospitals and use of teaching methods guided by positivist scientific practice were emphasized. This model reoriented medical teaching around the world and its paradigm still influences healthcare training, in the view of many authors¹⁻³.

In the 1950s, national and international forums started to point out the inadequacies of this model for guiding medical training, given that medical curricula based on this model were distant from the population's healthcare needs^{4,5}.

From these forums, and within the embrace of the Brazilian healthcare reforms, a movement to bring healthcare professionals' training closer to the real needs of the population arose. This movement was based on the concept of comprehensiveness of healthcare^{6,7}.

Starting in 2001, with the publication of the Brazilian national curricular guidelines for medical courses, the Ministry of Health took on the role of instigator of human resource training, which until then had been led by the Ministry of Education. One important step that strengthened the role of the Ministry of Health was the creation of the Department for Administration of Healthcare Work and Education (SGTES)^{8,9}.

In 2002, the Ministries of Health and Education jointly created a program for stimulating curricular changes within medical courses (Promed), which encouraged medical schools to adapt their curricula to the 2001 national curricular guidelines. Inspired by Promed, a national program for reorientation of professional healthcare training (Pró-Saúde) was created in 2005. This expanded the stimulus to other healthcare courses⁹⁻¹¹.

In 2008, through a new interministerial ordinance, an education program for healthcare work (PET-Saúde) was instituted with the aim of strengthening teaching-service integration¹².

Another important step was the creation of the More Doctors Program in 2013. Among other actions, this program established new parameters for medical training in Brazil and led to drafting of new national curricular guidelines for medicine, which were published in 2014¹³⁻¹⁵.

The aim of the 2014 national curricular guidelines was to change the paradigms of medical courses in Brazil, in order to train professionals who would be better prepared to work in the Brazilian National Health System (SUS)¹⁶. Its main features comprised learning centered on comprehensiveness of care and emphasis on primary healthcare. Thus, the aim was to shift hospital-centered training to systemic logic. This was one of the most important pedagogical conceptions¹⁷ and it pointed the way to multidisciplinary approaches and collaborative work in healthcare team, with adoption of innovative teaching methodologies. This also instigated higher education institutions to shoulder their social responsibility towards SUS and towards care for its users¹⁶.

Since then, studies have been conducted on its practical effects^{16,18-20} and on its conception^{17,21,22}. However, little attention has been given to its repercussions on the pedagogical projects for courses at new medical schools. This was therefore the justification for the present study.

Methodological path

This study took a qualitative approach, consisting of a survey of documents, with the aim of analyzing the repercussions of the 2014 national curricular guidelines for undergraduate medical courses on the pedagogical projects for these courses at new medical schools that were created after publication of the guidelines on June 20, 2014¹⁴.

Between that time and the start of data collection for this study, in February 2017, 53 new medical schools were created. To obtain the pedagogical projects for their courses, a sequential strategy was adopted. Firstly, the electronic website of the Ministry of Education was accessed, then the websites of the schools themselves and, lastly, for any schools that did not make their websites available, formal contact was made through sending emails to the electronic address of the course coordinator, which was obtained from the Ministry of Education's website. Even though these documents can be considered to be public in nature, this process only resulted in a sample of 15 pedagogical projects for inclusion in this course, which were randomly identified as "E1" to "E15".

The systematization of the material thus collected followed the methodological framework of content analysis, with emphasis on thematic analysis^{23,24}. For this, the empirical categories used were care production, healthcare administration and pedagogical conceptions. It was decided to present the results within the three dimensions of the competency profile of the 2014 national curricular guidelines.

The discussion was oriented around a stance of critical hermeneutics. It was sought to avoid any situation in which the researcher might become deaf to various other "truths" and fail to enter into dialogue with and interrogate the study material, more through unfamiliarity than through familiarity, as a condition for comprehending the phenomenon studied^{25,26}.

In conducting this study, ethical issues were respected as recommended through National Health Council resolution no. 466/2012. Because this was a study using documents of public nature, there was no need to submit the study design to a research ethics committee.

Results and discussion

Among all the new schools, 27 (51%) are public and 26 (49%) are private. Through the sampling achieved, 80% were public and 20% were private. The documents relating to all the public schools were obtained from the institutional websites, while this was only possible for one third of the private schools. This situation may show that public schools favor access, thereby respecting the public nature of these documents.

All regions of Brazil were included among the set of schools analyzed. The 12 public and three private schools analyzed were distributed in 11 states, mostly in medium-sized cities (up to 200,000 inhabitants). Three characteristics among these schools can be highlighted: most of them were in the northeastern region of the country, especially away from the capital cities of these states, and they were mostly federal institutions.



This profile of geographical distribution and administration among the schools is coherent with public policies such as the support program for restructuring and expansion plans for federal universities (REUNI) and the More Doctors Program.

Below, data obtained from the pedagogical projects are presented. They follow the logic of the groups of meanings that were identified, with exploration of each of the analysis categories.

Healthcare

Within this dimension, three groups of meanings were identified: health-sickness processes, healthcare production and general training.

Health-sickness processes are expressed in pedagogical projects as concepts that structure healthcare practices and disseminate educational actions. Two explanations for this process have been put forward. Although they do not exclude each other, the first explanation (multicausal) places certain conditions at the same level, such as food, housing, education, income, environment, work, employment, leisure, freedom, access to and possession of land and access to healthcare services. In the second model (social determination), the explanatory strand for the health-disease process is the different ways of socially organizing production, which generate significant differences in the levels of life, depending on the social positions that individuals and groups occupy^{6,9,27}.

[...] element that should guide the pedagogical project for the course: adoption of an expanded concept of health as a reference for project conception and for the curriculum. In other words, although health has a fundamental biological dimension, given that imbalances generally reflect pathological conditions in the body, it cannot be summarized as this dimension alone, considering that factors of other natures can convert into determinants of the health-disease phenomenon. (E2)

[...] the expanded concept of health requires future professionals to be aware of different aspects of the realities within which health-disease phenomena occur, so that these can be supported through a comprehensive reading of the world, from which politics cannot be absent, understood as the space for contestation and power relationships; economics, as the sphere in which production, circulation and distribution of goods and services takes place; culture, as the repository of all the reserves of wisdom of the group [...]. (E2)

Social determination of the health-disease process was prominent in the 2014 national curricular guidelines. However, these differences did not give rise to consequences in the conception of the curriculum.

In the group of meanings described as care production, three categories were identified: expanded clinical care, patients as subjects and care production in teams.



Regarding clinical care and the care process, the schools pointed out the need to surmount the predominance of the biological model and disease model. Instead, the focus should be on subjects who become ill and suffer through this, within their family and social context. Together with this change, the documents emphasized adoption of the concept of expanded clinical care, as proposed by Campos²⁸. This takes a different understanding of clinical care that goes away from the biomedical model, towards subjects' subjective and social characteristics, while respecting the singular nature of each case, with the aim of stimulating autonomy and protagonism among these subjects.

Seek dialogue regarding the needs that an individual under your care or responsibility mentions, in relation to the needs that healthcare professionals perceive, and stimulate this individual to reflect on his or her problems, so as to promote self-care. Agree on care actions and promote participation by other professionals whenever necessary. (E2)

[...] include the perspectives of users, family and community, thus favoring greater autonomy for the individual in deciding on the therapeutic plan and respecting his or her planning and decision-making processes and beliefs and values. (E5)

In relation to care production, the pedagogical projects showed that the schools were attentive towards the idea of including other professionals within this dimension of care. They took the view that multiprofessional teams might develop more comprehensive and curative forms of care.

The schools indicated two main dimensions of teamwork: interdisciplinarity and multiprofessional action. They indicated that interdisciplinary practices should be constructed day by day within students' experiences, such that these become a constant attitude within their professional routine and not a sporadic attitude. Thus, students are exposed to situations in which they learn together. When faced with the same problem, the complexity of practice shared by students from different fields enables different viewpoints that provide a broader view of the realities within healthcare.

[...] an interdisciplinary emphasis favors new dimensions in the relationships between different subject materials. This contributes towards surmounting the fragmentation of knowledge. Integration also implies thinking of new interactions in multiprofessional teamworking. It creates exchanges of experiences and knowledge within a stance of respect for diversity, with cooperation to implement transformative practices and partnerships in constructing projects with continual dialogue. (E3)

Regarding doctors' general training, the schools' discourse showed different meanings. In addition to the technical-humanist nature that was present in all of their discourse, emphases were placed on the following, as attributions of generalist doctors: provision of health promotion actions, preventive measures and health recovery and rehabilitation actions, with reference to comprehensive care; curative action for around 85% of the



population's health problems, which is in line with what is shown in the literature^{11,12,13}; and incorporation of the logic of universality of care, either represented by cycles of life or grounded in basic medical specialties.

Demonstrate the capacity to perform complete medical consultations within primary healthcare for children, pregnant women, adults and elderly people of both sexes. (E8)

Master knowledge relating to actions within the main areas of medicine (pediatrics, internal medicine, obstetrics and gynecology, surgery, mental health and social medicine). (E7)

Provide comprehensive care with the expected curative level for most cases, and identify the situations that need to be brought into the regulation systems for referral to specialized levels of care. (E9)

[...] training of doctors with proficiency of professional action within the scenarios of primary care and emergency care, within the healthcare system [...]. (E3)

It can be stated that general training for doctors is a polysemic field. The idea that the sum of knowledge of the main medical specialties would be enough to prepare a professional to provide comprehensive care still persists.

The 2014 national curricular guidelines¹⁴ envisage that medical training in fields that are strategic for SUS is important. The schools were seen to be aligned with this policy.

Healthcare administration

Healthcare administration is one of the areas of competency that forms part of the 2014 national curricular guidelines¹⁴. In the 2001 guidelines, this area was of managerial nature, centered on decision-making, leadership, administration and management. In the 2014 guidelines, the area of competency comprised the concept of administration of care. The schools had incorporated this concept and expressed it in their pedagogical projects through the terms clinical administration²⁹ and care administration^{30,31}.

In analyzing the pedagogical projects, three groups of meanings within this dimension were identified: care administration, managerial competency and follow-up and assessment of healthcare work.

There was unanimity in accepting that care has a relationship with administration, i.e. that care can be managed and that this should be incorporated into the healthcare responses that are developed.



Understand the principles of clinical administration and apply them to organizing the demand. (E8)

Care administration, through use of knowledge and tools at all levels of technology, to promote organization of integrated healthcare systems for formulating and developing individual and collective therapeutic plans. (E15)

Although clinical administration and care administration are treated as a single topic, they appear to have different meanings. The first relates to administration as a managerial competency, in the sense of teamworking, development of leadership and conflict management, while the second relates to administration of the services provided within the healthcare system, organization of care networks and intersectorality, with a view to enabling comprehensiveness of care and qualifying users' therapeutic pathways^{30,31}.

The pedagogical projects also addressed clinical monitoring. This was mainly in the form of following up and assessing healthcare work. It included use of indicators, protocols, cost-benefit ratios, cost effectiveness analyses and audits, which was closer to managed care models³².

In addition to these meanings, the schools had brought in some elements with managerial implications: efficacy of care, best practices and improved assistance. These were consonant with the concept of clinical governance proposed by Gomes et al.²⁹.

Healthcare education

Continuing education, as this was designated in the 2001 national curricular guidelines, was replaced in the 2014 guidelines by healthcare education, which is one of the major fields of medical competency^{10,14}.

From the analysis on the pedagogical projects, four centers of meanings were identified within this dimension: pedagogical approach, curricular structure, sharing of knowledge and teacher capacitation.

Historically, the teaching-learning process was limited to reproduction of knowledge, in which teachers took on the role of transmitting the content material, while students needed to retain and repeat it, passively and acritically³³⁻³⁵.

With the aim of going beyond these characteristics, a movement towards producing changes through use of active teaching-learning methodologies developed, with promotion of transformative education³³⁻³⁵.

The 2001 national curricular guidelines already pointed towards the need to use other teaching methodologies. The 2014 guidelines confirmed the importance of this change, in the pedagogical model to be adopted by schools.

The number of schools that have adopted active methodologies is growing around the world and in Brazil³⁶. Two main strategies have been used by the schools studied here: problematization and problem-based learning (PBL). Some schools reported using both PBL and problematization, and these strategies may be complementary.



PBL in educating healthcare professionals has three objectives: acquisition of an integrated body of knowledge, application of skills to solve problems and development of clinical reasoning. Problematization, as a teaching, study and work methodology, [...] integrates the course methodology as a strategy for stimulating curiosity and makes it possible to go to greater depth of theory in the subject matter [...]. (E2)

One school cited use of a constructivist spiral methodology, involving use of triggers to simulate real problems.

All the schools said that, to some extent, they were using active teaching-learning methodologies. One school had adopted a hybrid curriculum.

[...] this is a hybrid curricular model that allows us to bring together eclectic strategies, actions and knowledge. The convergent aim is to achieve integrated training for individuals, based on significant problematizing learning that makes full use of active methodologies and tools for teaching and learning. (E7)

The schools demonstrated the relevance of development of activities within real scenarios of healthcare services, in which contact with these realities becomes possible. In addition, use of simulated settings was proposed, through a variety of educational strategies, such as use of simulators, mannikins and role-playing³⁷.

Another important matter is assessment, which is considered by some authors to be the best evidence regarding a school's pedagogical project^{16,38}.

In-course assessment has been gaining space, and the schools studied here valued this assessment method.

In-course assessments are made regularly during the training process, with the aim of obtaining data on the students' progress. Thus, these assessments may enable timely corrections for an deviations observed and strengthen the achievements made. (E6)

It is known that no method alone has the capacity to assess the many aspects of the complexity of medical knowledge. Hence, there is a need to use combinations of methods, as presented by the schools, focusing on in-course assessment^{39,40}.

The analysis on the pedagogical projects allowed the inference that advances had been made regarding the educational strategies used in the schools' courses. Most of the schools were using expositive classes as complementary to other strategies aligned with active methodologies, such as tutorial groups and team-based learning (TBL).

The new medical schools had defined a variety of arrangements for organizing their curricula. In the pedagogical projects, the guidelines for organizing the curriculum predominantly consisted of forms of collection curriculum⁴¹, constituted by basic, clinical and intern cycles. Formatting of the curriculum in this manner formed a factor that gave rise to difficulty in integrating the disciplines, although such integration is fundamental to interdisciplinarity within medical training. Thus, surmounting the obstacle of this type of formatting was shown to be difficult.

[...] The first cycle of learning lasts two years and integrates basic and applied knowledge with relevant practical scenarios, but with emphasis on basic knowledge. The second two-year cycle emphasizes applied knowledge and the third two-year cycle emphasizes learning as a medical intern. (E4)

Integrated curricula⁴¹ were also mentioned in the pedagogical projects studied. These present subject matter in several ways: thematic modules according to life cycle, units according to organic systems or activities around key concepts.

The 2014 national curricular guidelines¹⁴ determined that students should be introduced to healthcare services at the start of the course and their exposure should continue throughout the course. The new schools were following this recommendation. Provision of closer contact for students, with the daily realities of healthcare services and their users, makes it possible for linkages to be produced and tends to solidify the training from a perspective of comprehensiveness. Within practical scenarios, students develop unique experiences that would be impossible to have in a classroom.

The 2014 national curricular guidelines for medicine, as determined by law no. 12,871, indicate that at least 30% of the timetabled activities for interns should be developed within primary care and emergency services, with predominance for primary care. This should be coordinated by the body for general family and community medicine¹⁴. It was observed through the pedagogical projects that the schools were following this recommendation. Thus, new graduates from these schools should be capable of acting at all points in the care network, and especially at its entry points.

In the category of the teaching-service relationship, two subcategories emerged from the pedagogical projects: horizontality in relationships and the organizational contract for teaching-service public action (COAPES). Establishment of COAPES was an innovation within the 2014 national curricular guidelines, in relation to the 2001 guidelines, and although this is a recent tool, the schools reported that they were using it.

In relation to sharing of knowledge, within the sphere of education with the team and for work, it was observed that the concept of continuing education had not been incorporated by the schools, which confused it with continued education.

[...] have some technical-scientific curiosity and do continuing education (a constant search for information and self-learning). (E5)

Keep up-to-date all the time in your professional life, by constantly participating in programs of continued education. (E7)

Even today, the term banked education remains a reality within healthcare practices, in which biologicistic discourse and normalizing interventions are reproduced, in an asymmetrical relationship between educators and students, or between professionals and users^{33-35,38}.

Some pedagogical projects showed that popular healthcare education should be a strategy experienced by students, with the aim of stimulating subjects' autonomy⁴².

The 2014 national curricular guidelines for medicine¹⁴ determined that courses should continually maintain training and development programs for healthcare teachers. All the schools had structured programs for teacher capacitation, some within the logic of continuing education and others within continued education.

These findings were close to those from other studies^{19,43,44} that also indicated that the principles of the national curricular guidelines had been included in the pedagogical projects and curricula of medical schools. Incorporation of these principles occurred with a range of levels of expression. Some schools lacked clinical methods centered on the individual and on shared decision-making, while others showed differences in teaching methodology with regard to the conception of the course.

Final remarks

We recognized that the institutional context of creation of the More Doctors Program in 2013 and elaboration of the national curricular guidelines for medicine in 2014 had stimulated an increased offer of places for doctors to be trained. This public policy established that medical courses should be conceived through new educational paradigms that were aimed towards working in the Brazilian National Health System (SUS), and especially in family health teams.

This political delineation opened up an opportunity for higher education institutions. It can be stated that the instigating capacity of these new institutional norms was highly effective, given that during the period studied (2014-2017), 53 new medical schools were created within public and private higher education institutions, with components of the phenomenon of moving away from state capital cities. For these new schools to have their creation approved, they presented their pedagogical projects, which had been aligned with the set of rules and norms defined in the legal documents, to the Ministry of Education.

Our analysis on the pedagogical projects of these higher education institutions made it possible to identify their elements. These showed high convergence with the changes that had been intended through the 2014 national curricular guidelines. These elements pointed clearly towards the expanded clinical care model, thus showing that alignment with the comprehensive care model adopted through the 2014 national curricular guidelines for medicine had been achieved.

The schools had sought to implement healthcare from the perspective of care, thereby surmounting the biologicistic model that had hitherto been used.

There were some divergences regarding the conception of general training for doctors. Therefore, this issue, which is essential for structuring the curricula, continues to be a major challenge for the schools to overcome. Structuring of training through the body for general family and community medicine may provide guidance for training generalist doctors.

Training aimed towards primary care can be considered to be an achievement, given that this consists of comprehensive care that is humanized and interprofessional and meets the real needs of the population.



Another important achievement from the 2014 national curricular guidelines was that the concept of care administration was brought out. The schools went along with this advance, thus demonstrating that they understood that care could be managed. However, it should be noted that the pedagogical projects presented more elements and strategies for developing healthcare competency than for care administration. This might denote that there was some difficulty in incorporating managerial competencies among doctors.

In relation to healthcare education, broad adherence to active teaching-learning methodologies was observed, thus showing strong alignment with the 2014 national curricular guidelines. However, in analyzing the curriculum plan and the educational strategies, it was seen that in practice, the curricula were hybrid or traditional. This may indicate the existence of a certain degree of resistance to conceptual changes to the curriculum, or that the schools were going through a time of transition.

The schools were still structuring their curricula in cycles. This format is closely related to the Flexner model and it can be expected that this will by now have been surmounted.

The schools accepted the importance of curricular integration, but this was predominantly seen among the disciplines of the same cycle, and not between the basic, clinical and intern cycles. Thus, another major challenge to be overcome by the schools is to join together the proposed and prescribed curricula. Although the pedagogical projects express the central elements of the national curricular guidelines, analysis on the prescribed curriculum shows that there is a gap in the structuring of the courses. This is mainly in relation to organizing the curriculum, which may suggest that a collection curriculum is being maintained.

In structuring programs for training and development of teachers, the schools demonstrated that they were committed to changes in professional training for doctors.

Careful analysis of the pedagogical projects showed that a shift in paradigm had occurred, from the Flexner model to a comprehensive model, albeit still with some weaknesses.

Given that the present study was conducted on the formal curriculum, one of its limitations was that it did not portray other dimensions, such as the parallel curriculum or the concealed curriculum. In this regard, it is recommended that further studies should be conducted with the aim of including the views of teachers and students on the curriculum that they experience and its impact on the changes to doctors' training that are sought.

Authors' contributions

All the authors participated actively in all stages of elaboration of this manuscript.

Conflict of interest

The authors have no conflict of interest to declare.

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As Diretrizes Curriculares Nacionais orientam a constituição dos currículos para ordenamento da formação profissional em saúde e os projetos pedagógicos dos cursos as articulam às práticas pedagógicas. Esta pesquisa analisou as repercussões das Diretrizes Curriculares de 2014 nos projetos pedagógicos das escolas médicas criadas após sua publicação. De abordagem qualitativa, faz análise documental dos referidos projetos orientada pela hermenêutica crítica. Os achados revelam forte alinhamento dos projetos analisados às diretrizes curriculares. Identificou-se deslocamento do paradigma flexneriano para a integralidade, tendendo para formação de profissionais voltada às reais necessidades da população. Outros achados são as diferenças na concepção do médico de formação geral e na utilização das metodologias ativas de ensino-aprendizagem. Evidenciou-se ainda matrizes curriculares com concepções cuja proposta de integração ensino-serviço-comunidade não pareceu estar garantida, sugerindo a manutenção de propostas baseadas em disciplinas.

Palavras-chave: Educação médica. Currículo. Educação de graduação em Medicina. Política de educação superior.

Las Directrices Curriculares Nacionales orientan la constitución de los currículos para ordenamiento de la formación profesional en salud y los Proyectos Pedagógicos de los Cursos las articulan con las prácticas pedagógicas. Esta investigación analizó las repercusiones de las Directrices Curriculares de 2014 en los Proyectos Pedagógicos de las escuelas médicas creadas después de su publicación. De abordaje cualitativo, hace análisis documental de los referidos proyectos orientados por la hermenéutica crítica. Los hallazgos revelan un fuerte alineamiento de los proyectos analizados con las directrices curriculares. Se identificó un desplazamiento del paradigma flexneriano para la integralidad, tendiendo a la formación de profesionales enfocada en las necesidades reales de la población. Otros hallazgos son las diferencias en la concepción del médico de formación general y en la utilización de las metodologías activas de enseñanza aprendizaje. Se evidenciaron también matrices curriculares con concepciones cuya propuesta de integración enseñanza-servicio-comunidad no parecía estar garantizada, sugiriendo el mantenimiento de propuestas con base en asignaturas.

Palabras clave: Educación médica. Currículo. Educación de graduación en medicina. Política de educación superior.