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Incorporating public health into the curricula of medical programs in Bahia, Brazil

Geyse Clea Silva de Miranda https://orcid.org/0009-0007-1807-1279 [1]; Carmen Fontes Teixeira https://orcid.org/0000-0002-8080-9146 [2]

Abstract *The present study aims to analyze the inclusion of Collective Health knowledge and practices in the pedagogical projects of medical courses, taking as a reference the 2014 National Curricular Guidelines (Diretrizes Curriculares Nacionais – DCNs) for Undergraduate Medical Courses. The methodology included selecting six courses from among the 30 offered in the state of Bahia and analyzed the curricular matrix and the syllabuses of the curricular components that present content from the sub-areas of Collective Health—Epidemiology, Policy, Planning and Management, and Social and Human Sciences in Health. The results show a diversity of designations and workloads, highlighting the coexistence of concepts and practices stemming from various reform movements, such as Preventive Medicine, Community Medicine, Social Medicine, Family Health, Primary Health Care, as well as topics related to the field of Collective Health, offered in the pre-internship and internship periods. The conclusion is that the courses analyzed are not fully complying with the provisions of the 2014 DCN, with varying degrees of approximation to these recommendations, which requires a comprehensive evaluation process of these courses, especially given the enormous expansion and privatization of medical education in the country over the last decade.*

Key words *Medical Education, Collective Health, National Curriculum Guidelines*

[1] Instituto de Psicologia e Serviço Social, Universidade Federal da Bahia. R. Aristides Novis (Estrada de São Lázaro) 197, Federação. 40210-730 Salvador BA Brasil. geyse.miranda@ufba.br
[2] Instituto de Humanidades Artes e Ciências, Universidade Federal da Bahia. Salvador BA Brasil.

Introduction

Professional training in the health field has been considered a "critical node" in the consolidation process of the Brazilian health system[1]. From this perspective, several authors have advanced in criticizing the limitations of the dominant training model in the area due to its eminently biomedical focus, which is geared towards patient care, especially in the hospital setting. This point of view is highly based on the reproduction of clinical practice, in individual care, which is dependent on the use of diagnostic and therapeutic technologies that contribute to the intensification of the "medicalization" of health[2,3] and the "commodification" of the service rendering process[4].

This leads, according to Teixeira *et al.*[5], to the loss of integrative rationality, that is, the struggle to develop a way of thinking that accounts for the complexity of the social determinants of the health-disease process and the ways in which it manifests itself in different population groups and in individuals. This model also tends to hinder the understanding of the challenges that arise today concerning the organization and operation of comprehensive health care for the population and humanized care.

Therefore, there is a clear need for change in higher education in the field of health that transcends the limits of curricular restructuring and proposes new models for staff training that focus on the organization and management of academic activities, building dialogue between the various fields of knowledge. With this, it is possible to envision "the training of professionals who possess a broad vision of the health-disease process, on individual and collective levels, are capable of working in teams, are able to competently engage in health promotion and risk prevention practices, and are able to provide comprehensive and effective clinical care, taking into account the diversity and complexity of the health scenario of the Brazilian population"[5] (p.26).

Thus, it is important to recover the contribution that the teaching of Public Health may (or may not) be making to the processes of change in professional health training, not only through the expansion of courses developed in postgraduate programs[6] and undergraduate courses in Public Health[7], but, essentially, in other professional courses in the health area, seeking to analyze the incorporation of knowledge, skills, and attitudes consistent with the theoretical-epistemological, pedagogical, and political assumptions that underpin the field of Public Health[8], especially the teaching of Epidemiology; Policy, Planning and Management (*Política, Planejamento e Gestão* – PPGS); and Social and Human Sciences in Health (*Ciências Sociais e Humanas em Saúde* – CSHS).

Seeking to substantiate this statement, we conducted a preliminary literature review on the teaching of Public Health in undergraduate medical courses, in the Capes Periodicals Portal, in August 2021, using the descriptor "medical education", Portuguese language, during the period from 2014 to 2021. This survey revealed that few studies actually address the teaching of Public Health in medical schools. In addition, these articles mainly deal with subjects and/or the content of: mental health; the family health strategy (FHS); health promotion; with emphasis on primary health care (PHC), which demonstrates a lack of work that problematizes core disciplines in the field of Public Health[9].

Seeking to fill this gap, a study was conducted with the aim of analyzing the insertion of knowledge and practices of Public Health in the pedagogical projects of medical courses, taking as a reference the National Curriculum Guidelines (*Diretrizes Curriculares Nacionais* – DCNs) of the 2014 Undergraduate Course in Medicine.

Theoretical and normative frameworks

The pedagogical project of a medical course, according to that set forth in the DCNs[10,11], explicitly states the objectives, graduate profile, curricular content, and other activities that the student needs to develop to "become a doctor"[12], thus guiding the entire teaching process. This document, therefore, expresses a formative intentionality and the path to be followed in order to achieve the proposed objectives[13], directing the set of teaching activities to be developed during the course.

In addition to this pedagogical dimension, this project implies a political direction, since the various options materialized in the document do not occur randomly, but rather consider the interests of certain groups within the medical school. Therefore, the choice of curricular content is not neutral; it is traversed by existing power relations in this field, especially the disputes surrounding the organization and reproduction of the hegemonic, medical-care and hospital-centric model of care[14], in which the physician occupies a dominant place in the hierarchy of the various professions, defined according to the technical and social division of medical work[15].

The reproduction of this model, within the scope of the training process, encourages specialization and subspecialization, resulting from the incorporation of knowledge produced within the scope of various subsidiary scientific disciplines of the biomedical paradigm[16]. It also boosts the development of technological skills for the management of increasingly specialized diagnostic and therapeutic procedures, methods, and techniques, derived from the biomedical paradigm, focused on clinical and surgical practice exercised on individual bodies, to the detriment of knowledge and practices derived from the movements to restructure education, such as Preventive, Community and Family Medicine[17].

Collective Health, originating from the critique of these movements, is a field of knowledge of an interdisciplinary nature whose basic disciplines are epidemiology, health planning/administration, and social sciences in health "[...] Complementary disciplines include statistics, demography, geography, clinical medicine, genetics, basic biomedical sciences, among others [...]"[18]. From this perspective, teaching in Public Health encompasses a set of specific disciplines, but it also establishes interfaces with disciplines and even curricular content from other areas, both from the so-called exact sciences as well as from the human and social sciences[19] (p.27).

The teaching of Public Health in medical courses can therefore be carried out in a "disciplinary" format – Epidemiology, PPGS, CSHS – and/or through related disciplines and specific practice fields. In the 2014 DCN, Public Health is expressly included in the sub-area "Attention to Public Health Needs," which is part of the "Health Care Competency Area," and in the internship, which "must necessarily include essential aspects of the Public Health area"[11]. In addition, it is present through themes that are the subject of its sub-areas, such as the social determination of the health-disease process, ethnic-racial and gender issues, health management and education, among others.

It should be noted that the 2014 DCNs, on the one hand, increased the emphasis on Public Health, insofar as they re-signify this area as a strategic space for medical training[20]; however, they present a certain risk of reductionism and confusion between Public Health and PHC[21].

Methodological strategy

The state of Bahia has a population of nearly 15 million inhabitants, according to the 2022 census, and is the fourth most populous state in Brazil. It currently has 30 (thirty) undergraduate medical courses[22] in operation—11 (eleven) public and 19 (nineteen) private—which together offer approximately 3,060 places per year.

Considering the large number of courses, we initially selected those that completed the total course load and, consequently, graduated their first class. Among the 15 that met this criterion, an intentional sample was taken by type, including: a) public and private schools; b) old and recent schools; c) schools linked to universities and isolated colleges; and d) schools in the capital and the countryside. The combination of these criteria led to the selection of six schools: the Federal University of Bahia (UFBA) – Salvador; the Bahian School of Medicine and Public Health (Bahiana); the University of Salvador (Unifacs); the Federal University of the São Francisco Valley (Univasf) - Paulo Afonso; Santo Agostinho College of Vitória da Conquista (Fasavic); and State University of Bahia (Uneb) – Salvador.

The analysis of the pedagogical projects of the courses included the identification of the curricular matrix, syllabi, and teaching plans of the curricular components that integrate the basic disciplinary axis of Public Health and other related disciplines and/or contents, considering: a) workload proportional to the total workload of the course; b) nature (mandatory); c) sub-area of Public Health (Epidemiology; PPGS; CSHS); d) mandatory curricular components that contemplate teaching-service-community integration; and e) insertion of Public Health knowledge and practices in the internship.

In addition, the inclusion of disciplines from the core and/or field of Public Health[23] that participate in the curricula was taken into account, mapping the curricular contents of Epidemiology, PPGS, and CSHS, but also disciplines and theoretical and practical contents identified as contents that belong to or are interconnected with the core or field of Public Health.

Having established this, we will discuss the main aspects analyzed in the selected courses, aiming to develop a critique of the pedagogical projects based on their alignment with or divergence from what is proposed for the teaching of Public Health in the 2014 DCNs, seeking to identify the degree of adherence of the analyzed courses to the established guidelines.

Results and discussion

Teaching Public Health in Medical Schools

The first aspect that stands out in the analysis of Public Health in the selected courses concerns the proportion of the teaching hours dedicated to this area compared to the total teaching hours of the courses. Thus, a variation is observed between 12% (UFBA) and 16.6% (Uneb); however, one course dedicates 27.4% (Unifacs), representing a discrepancy from the average of the others. Specifically regarding the period preceding the internship, a variation is observed between 6.4% (Univasf) and 8.5% (Uneb), with the exception of Unifacs, which dedicates 21.3%. During the internship, in turn, Public Health represents between 4.1% (UFBA) and 9.6% (Univasf) of the total teaching hours of the courses, showing, at this stage, a uniformity in the allocation of teaching hours within all courses.

The second aspect to be highlighted concerns the designation of the curricular components dedicated to Public Health. Only two courses (Bahiana and Uneb) have components called "Public Health" in their curricula during the period preceding the internship. In addition, these two courses also offer the subject Epidemiology, one course (Unifacs) offers the PPGS curricular component, and none offer the CSHS curricular component.

However, our study found that the inclusion of theoretical and practical content belonged to the field of Public Health in curricular components dedicated to the "integration of teaching-service-community" or in those whose designations refer to themes in this area, such as "Health Policies", "Communication in Health", "Anthropology of Health", among others.

Thus, it is important to highlight that the teaching of Public Health in these courses does not arise from the sub-areas that compose it, with the offering of curricular components and correlated content predominating, especially that related to the "field" of Public Health, with curricular components of the "core" that give identity to Public Health appearing less frequently[23].

Another aspect to be highlighted is the offering of curricular components entitled "Social and Clinical Medicine," "Social Medicine," "Family and Community Medicine," "Family Health," "Primary Care," and "Family and Community Health," in which, according to the syllabuses, content from Public Health is addressed, which indicates the permanence of designations, which are part of the very historical constitution of this field[24] (p.179).

In fact, since García's pioneering study[12] (1972) on the teaching of Preventive Medicine in Latin American medical schools in the 1970s, this author found that such schools had subjects in their curricula that, although not titled as "preventive medicine", offered content from this area. Furthermore, terms such as "Public Health," "Social Medicine," and "Community Medicine" were frequently used as synonyms for Preventive Medicine.

Some fifty years later, the persistence of this diversity of nomenclatures may even highlight the existence of different conceptions among the teachers who work in the curricular components of the field of Public Health in medical courses, which may result from the characteristics of their postgraduate training, in programs that privilege different ideological movements in health, such as Social Medicine, Preventive Medicine, Family Medicine, as well as more recent movements, including PHC and Health Promotion[17] (p.101), which support the formulation of health policies and programs within SUS, such as the Basic Health Care Policy, the Family Health Strategy (FHS), the More Doctors Program, among others.

Teaching the sub-areas that make up the "core" of Public Health

The analysis of the course outlines, considering the inclusion of content related to the sub-areas that make up the "core" of Public Health, demonstrated a predominance of content from Public Health Graduate Programs, followed by the sub-areas of Epidemiology and Social Sciences and Humanities in Health. This predominance of the Public Health Graduate Program sub-area highlights the importance given, in most pedagogical projects, to learning the medical practice that is carried out at various levels of complexity within health systems—be that in the hospital setting, in specialized care, or in PHC.

This reveals a pragmatic perspective to the detriment of learning the content of the sub-areas of Epidemiology and CSHS, which would give graduates of the courses a more comprehensive view of the epidemiological and social aspects concerning the practice of Medicine, be that at the micro level, of the individual care provided to patients, in which the teaching of clinical Epidemiology is relevant[25], or at the col-

lective level, for the understanding of the social determinants of the health-disease process, the object of Critical Epidemiology[26].

It should be noted that most courses include the contents of PPGS in components and activities of teaching-service-community integration that basically address the historical process of shaping health policy in Brazil and SUS itself, with different approaches and degrees of depth. Furthermore, a single course incorporates the contents of PPGS into subjects entitled "Social and Clinical Medicine" (UFBA), "Social Medicine" (UFBA), and "Family and Community Medicine" (UFBA), highlighting a certain imprecision regarding this sub-area and Public Health itself.

With regard to SUS, different approaches and variations in the frequency of this content in the syllabi can be observed, with only two courses (UFBA and Bahiana) addressing the principles, guidelines, forms of organization, and functioning of this system, a disturbing aspect, since the theoretical-practical and practical activities of the courses take place within the scope of SUS, and therefore it would be desirable for students to have basic knowledge on the subject.

In this regard, the 2014 DCNs recommend that "graduates acquire competencies to work primarily in SUS"[11] and establish that students must fulfill a minimum workload in PHC. However, in most courses, the approach to PHC is restricted, without analyzing principles, characteristics, concepts, and challenges, with the exception of the Bahiana course, which includes, in some curricular components, the teaching of the principles, fundamentals, and conduct to be followed by physicians in this area.

This is an aspect to be highlighted considering that, before the internship, the teaching of PPGS content occurs mainly in curricular components that use the Family Health Units (FHUs) of the municipal SUS network where the courses are located as a field of practice for the students; therefore, it would be expected that the theoretical content would include information about the Primary Care Policy and the FHS[27].

However, the reduced number of hours dedicated to these topics in the overall curriculum, as well as the superficial way in which they are addressed in most courses, reinforces the analyses of some authors[1,28] regarding the disconnect and inadequacy of the profile of medical school graduates to the needs of the public health system, whose expansion, especially in the area of PHC, demands a profile of a general practitioner, qualified to act on the most common and frequent problems of the population that accesses the system at this level.

Furthermore, it is important to note that two of the courses (UFBA, Univasf) offer specific content on "Family and Community Medicine," indicating that, in the design of the curriculum matrix of these courses, and specifically in the elaboration of the syllabuses, the reproduction of the principles and foundations of Family Medicine[17] (p.125-126), originating in the USA and subsidiary to a liberal conception of Medicine, predominated. In Brazil, this translated into training in Family and Community Medicine Residencies[29], configuring the movement currently represented by the Brazilian Society of Family and Community Medicine, which brings together "specialist" doctors in this area, which are therefore distant from the "generalist" vision advocated by the 2014 DCNs.

Moving on to analyzing the teaching of Epidemiology, it is important to emphasize, first and foremost, that it also occurs in a diversified manner among the courses. In those courses with specific curricular components in this sub-area (UFBA and UNEB), there is a greater scope of content related to the epidemiological aspects of population health problems. In the other courses, Epidemiology content appears in curricular components dedicated to other disciplines, and is therefore fragmented, not allowing for a clear understanding of its importance in medical training.

In both situations, the syllabuses emphasize the learning of basic descriptive epidemiology content, such as morbidity and mortality indicators, used in teaching the population's health status and in characterizing problems defined according to the incidence and prevalence of specific diseases[30], with only the syllabuses of the Bahiana and Univasf courses addressing, in addition to these basic contents, the learning of the social determinants of health, content related to the critical approach to Epidemiology[26].

It is therefore evident that the contents of epidemiology are treated in the selected courses in an instrumental manner, that is, they are included in the curriculum merely as auxiliary knowledge for the development of clinical practice or, at most, as an indication of instruments and techniques for the production and analysis of epidemiological data that can contribute to a broader understanding of the health problems of the Brazilian population. In this sense, the teaching of health surveillance, in most courses,

occurs in a way that is disconnected from the debate on proposals to change the health care model[31] or from the contribution of surveillance to health planning[32].

These findings reinforce the analysis made by Souza *et al.*[33], according to which, despite the fact that postgraduate courses in Public Health train professionals of excellence in Epidemiology, in undergraduate medical courses, Epidemiology is often relegated to the background, that is, as a "secondary discipline when compared to Medical and Surgical Clinics", which does not align with the guidelines of the 2014 DCNs.

Finally, it is important to discuss the teaching of the contents of the CSHS sub-area, which, since the 1990s, has expanded and diversified its themes and focuses of research and intervention, including "gender", "racism", "social medicalization", new forms of sociability resulting from the use of digital technologies, "intersectionality", among others, which underpin and enrich the field of Public Health and, concomitantly, generate specific knowledge[34].

The analysis of the curricular matrices of the selected courses reveals quite heterogeneous contents, perhaps reflecting the diversity of the profiles of the area's teachers. Thus, the syllabuses analyzed in this study cover everything from basic concepts in the Humanities and Social Sciences to the debate on "Human Rights" (Unifacs), "Social Determinants of the Health-Disease Process" (Bahiana, Univasf), "Ethnic-Racial Issues" (UFBA, Unifacs and Fasavic), "Mental Health" (Univasf), "Spirituality" (Uneb and Univasf), among others.

One aspect that draws attention is the offering of curricular components on the subjects of "Medical Anthropology" (Uneb) and "Anthropology in Health" (Unifacs); however, in neither of them does the learning of concepts and methods of anthropology address cultural aspects of the health-disease process, in an articulated way with the learning of Epidemiology or practices of health promotion and prevention of risks and harm, as advocated by researchers in this subarea[34,35].

It was also noted that the approach to the ethnic-racial issue, a cross-cutting theme in the teaching of health professions, is contemplated in only half of the medical courses analyzed (UFBA, Unifacs, and Fasavic), and even then, the appear together with other relevant themes, such as "Globalization", "Human Rights", "Gender", "Neoliberalism", "Environment", and of the like. In the Fasavic matrix, for example, this content appears in a specific curricular component of the "teaching-service integration" axis. The absence of this theme in other courses, as well as the rarity with which it is addressed in courses that include this issue in some component, is worrisome, given the ethnic-racial composition of the Brazilian population and, in particular, of Bahia, whose population is 80% self-declared brown and black[36].

In fact, a study prepared by Cabral *et al.*[37] found the invisibility of the racial debate in medical training to be in flagrant disagreement with what is advocated by the 2014 DCNs, which emphasize the need to appropriate content on the history of Afro-Brazilian and indigenous culture, interwoven with the acquisition of skills that take into account the particularities of the health of these groups, especially the black population. In this sense, Souza *et al.*[38] (p.3), point out that, notwithstanding the advances resulting from the formulation and implementation of affirmative action policies, the themes of "racism" and "health of the black population" are addressed in an incipient manner in the curricula of health area courses.

Another quintessential interdisciplinary theme that has been addressed in the field of Public Health concerns the content of Mental Health, which is present in the syllabuses of four courses (Bahiana, Uneb, Univasf, and Fasavic), but in an incipient and fragmented way, despite the relevance of this theme, including the change in the care model in this area, with the replacement of the nosocomial model by psychosocial care[39] through the Psychosocial Care Network, which constitutes one of the spaces of medical practice, noting that only in the Univasf course is this theme addressed.

Teaching Public Health during Internships

The analysis of the internship program design for the courses studied reveals that each course organizes the teaching of Public Health in a distinct way, as follows: "Social Medicine" (UFBA - 320 hours); "Primary Care and Collective Health (Bahiana - 580 hours); "Family and Community Health" (Uneb - 600 hours) and the "Internship in Collective Health" (Uneb - 80 hours); "Family and Community Health" (Unifacs - 240 hours), "Family and Community Health and Collective Health" (Unifacs - 240 hours); "Family and Community Medicine" (Univasf - 720 hours); and "Primary Health Care" (Fasavic - 520 hours) and "Collective Health" (Fasavic - 48 hours).

This diversity of names reflects the multiplicity of approaches already mentioned, but the disparity in course hours across the various courses is noteworthy. The analysis of the syllabuses shows that the Collective Health content appears in a fragmented manner, along with other content related to assisting individuals in different phases of life (child, adult, elderly, woman, etc.).

The practices are developed in PHC services, generally in FHUs or traditional Health Centers, which make up the SUS public health service network in the municipalities where the courses are located, and are restricted to learning medical practice carried out at the PHC level, notably individual care for users of basic units, even those that have multidisciplinary Family Health teams.

Thus, the learning developed by students during the Internship does not go beyond the reproduction of clinical practice, in attending to the so-called "spontaneous demand," or in the development of "programmatic actions" foreseen in the Health Programs, such as maternal and child health actions and the control of Hypertension and Diabetes. This hypothesis is corroborated by the fact that the syllabuses of the Internship programs do not refer to the sub-areas of Epidemiology, PPGS and CSHS, not even in the syllabus of the Internships entitled "Collective Health" (Uneb and Fasavic), the only exception being the UFBA course which proposes the performance of "Social Medicine and Public Health Practices in the form of training in services in the areas of Epidemiology, Planning, Administration, Organization, and Management of services and Health Education."

As Oliveira *et al.*[40] argue, the implementation of the New DCNs and the consequent compatibility of curricula is still carried out in an incipient way in medical courses, which compromises the training of future health professionals. Along the same lines, Oliveira *et al.*[41] (p.2) point out that the changes "still encounter resistance and difficulties to achieve full implementation."

Final considerations

Although the analysis of the pedagogical projects and the syllabuses of the curricular components reveals a variety of Public Health content included in the curricular matrix of the courses, both in the pre-internship period and, in an incipient way, in the Internship, the proportion of this content in the overall "process of producing doctors"[12] is minimal when compared to the set of knowledge, methods, and techniques taught in the curricular components aimed at reproducing the hegemonic medical-assistance model, that is, the clinical model, which values specialized and hospital care.

In addition, a disproportion is observed in the organization of Public Health teaching in the various courses, with a certain emphasis on teaching topics from the PPGS sub-area, to the detriment of teaching Epidemiology and especially the teaching of the CSHS, which contrasts with the historical process of the constitution of the field of Public Health, in which Brazilian Epidemiology is the most consolidated and internationally recognized sub-area[42].

By contrast, the teaching of the PPGS content, despite being present in all courses, is sparse and fragmented, with some emphasis on learning the history of health policy and some priority policies and programs, but without critically deepening the limits and challenges of the SUS implementation process throughout its nearly forty years of existence.

The teaching of CSHS, in turn, is even more incipient and disconnected from learning about the social determinants of the health-disease process, an essential theme for the critical and humanistic training advocated by the 2014 DCNs. In this way, it does not favor the training of professionals with a broad view of the health situation of the Brazilian population, capable of working in health teams within PHC services, seeking to carry out health promotion and risk prevention practices, as well as be able to provide comprehensive and effective clinical care.

This gap in training constitutes an obstacle to the reorientation of the healthcare model, since doctors trained in this context tend to reproduce the hegemonic conception of medical practice within SUS, whether in primary or specialized care. Thus, the weakness in the teaching of Public Health hinders the training of professionals capable of identifying and intervening in the set of healthcare needs of the population, of providing quality care, and of acting ethically and being committed to strengthening the public health system.

Finally, it is important to highlight that the analysis of the characteristics of Public Health teaching in the selected courses can reveal how power relations; disputes over the professional profile to be formed; the relationships between teaching agents (teachers and students) and their positions in the face of the tensions that

occur between the reproduction of the biomedical, clinical, and hospital-centric model; as well as the proposals for change that value the contents and practices of Public Health arise within medical schools.

Collaborations

GCS Miranda was responsible for the study's conception, data collection and analysis, writing, and critical review of the content. CF Teixeira was responsible for the study's conception, writing, critical review of the content, and final approval.

Data availability statement

The data sources adopted in the research are indicated in the article's body.

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