Evaluation of curriculum norms according to the National Curriculum Guidelines for graduate studies in Dentistry

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ABSTRACT

The term “curriculum” refers to the program followed by students in an institution of higher learning from the moment they begin their course of professional training until graduation. The National Curricular Guidelines (NCG) for undergraduate studies in dentistry, instituted by Resolution CNE/CES 3, February 19, 2002, define the principles, basis, conditions and procedures for the training of fulltime professional dental surgeons. Higher Education Institutions (HEIs) face the challenge of designing pedagogical projects that implement these concepts in order to meet the demands of society. In this context, the objective of this qualitative and exploratory study was to critically analyze the curricular matrices of two dentistry programs from HEIs located in distinct regions of Brazil. A logical model based on national curriculum guidelines (NCG) proposed by Pessoa and Noro was used to evaluate the formation of dental surgeons. This study analyzed the integration between basic and professional activities, the development of desirable competencies and abilities, and professional development beyond residency and complementary activities. It verified that the curriculum structures of the two institutions are in agreement with the ideals advocated by the NCG, in spite of containing aspects which do not strengthen the profession formation of graduates. It was observed that both models have strengths and weaknesses, which should elicit further discussions.

Descriptors: Human Resources in Dentistry. Competency-Based Education. Dentistry. Curriculum.

1 INTRODUCTION

The term "curriculum" refers to the coursework followed by students in a higher education institution (HEI) from the moment in which they begin professional training until graduation. Since the declaration of the Law of National Guidelines and Fundamentals of Education (9394/96), article 53,[1] each individual university exercises autonomy in the development of its course of study. Curricular Guidelines emerged in 1998[2] as complementary legislation in order to guide and standardize certain aspects of higher education in Brazil.

The National Curricular Guidelines (NCG) for undergraduate dentistry courses were instituted on February 19, 2002 by Resolution CNE/CES 3, defining the principles, basis, conditions and procedures for training dental surgeons and were established by the Board of Higher Education (BHE) of the National Council of Education (NCE) for national application in the organization, development and evaluation of the pedagogical projects of HEI undergraduate dentistry courses[3].

The NCG, according to Haddad *et al.*[4], signaled for a paradigm shift in the formation of decisive professionals, able to "learn to learn", to be a team player and to understand the social reality. A training institution should be open to social demands, and be able to produce relevant and useful knowledge, giving priority to universal and quality health care, with emphasis on the promotion of health and disease prevention. According to the same author, the role of Higher Education Institutions (HEIs) is to complement the course curriculum in a diversified way, capable of reflecting the reality of each institution and the impositions of the regional framework in which it is located.

In this sense, legislation explicitly imposes on the HEIs the challenge of collectively designing projects which should guide the student's education by providing opportunities to build projects at various levels by taking advantage of the collective work of the professors, from institutional pedagogical projects to daily university life, which guide the students through their program[5].

Historically, this coursework was defined by the use of graded curriculum, in which disciplines were organized in two stages: the general and the vocational. The student had access to internships only in the last stage. This model became insufficient after the institution of the NCG, which legislated a desired profile for their graduates. Its goal was the development of a critical and reflective spirit in the undergraduate, which, in addition to technical-scientific skills, was a means of solving the daily problems of the profession in a strategically planned and conscious way, primarily within the context of "SUS", the national Unified Health System in Brazil[4,6].

Professional formation of a superior level is not limited just to the mastery of knowledge transmitted in isolated disciplines, as was traditionally done. Knowledge must be acquired in a way that links it to social reality. In view of this, an organized curriculum model was proposed which would articulate and integrate both theory and practice, for the purpose of the formation of professionals who are more relational, ethical and reflexive[5,7].

The implementation of these concepts represents an arduous task for HEIs. According to Fonseca,[8] dental colleges face difficulties in adhering to the NCG because many function more as businesses than as educational and training institutions. The concern to train a "socially engaged" professional would therefore generalize his skills. The disciplined, traditional, fragmented model would therefore, for these institutions, be more adequate.

In this context, the objective of this study

is to critically analyze two curricular models (CM) of the dentistry programs of two HEIs, using the NCG as a point of reference.

2 METODOS

This was a descriptive study of a qualitative and exploratory approach, using documentary analysis[9] to obtain its proposed objective. Two CMs (CM1 and CM2) belonging to courses in dentistry located in distinct regions of Brazil were compared with resolution CNE/CES, dated February 19, 2002. The CMs were randomly selected.

The analysis was made using, as a point of reference, an adaptation of the study of Pessoa e Noro,[10] which proposed a logical model to evaluate the formation of dental surgeons based on the NCG (figure1).

The aspects analyzed are summarized in Table 1, in order to cover all aspects evaluated in models 1 and 2 in terms of the factors outlined in the DCN[3].

3 RESULTS AND DISCUSSION

The CMs contain distinct characteristics relating to the organization of the course, the distribution of credit hours and curricular content of their programs (table 1).

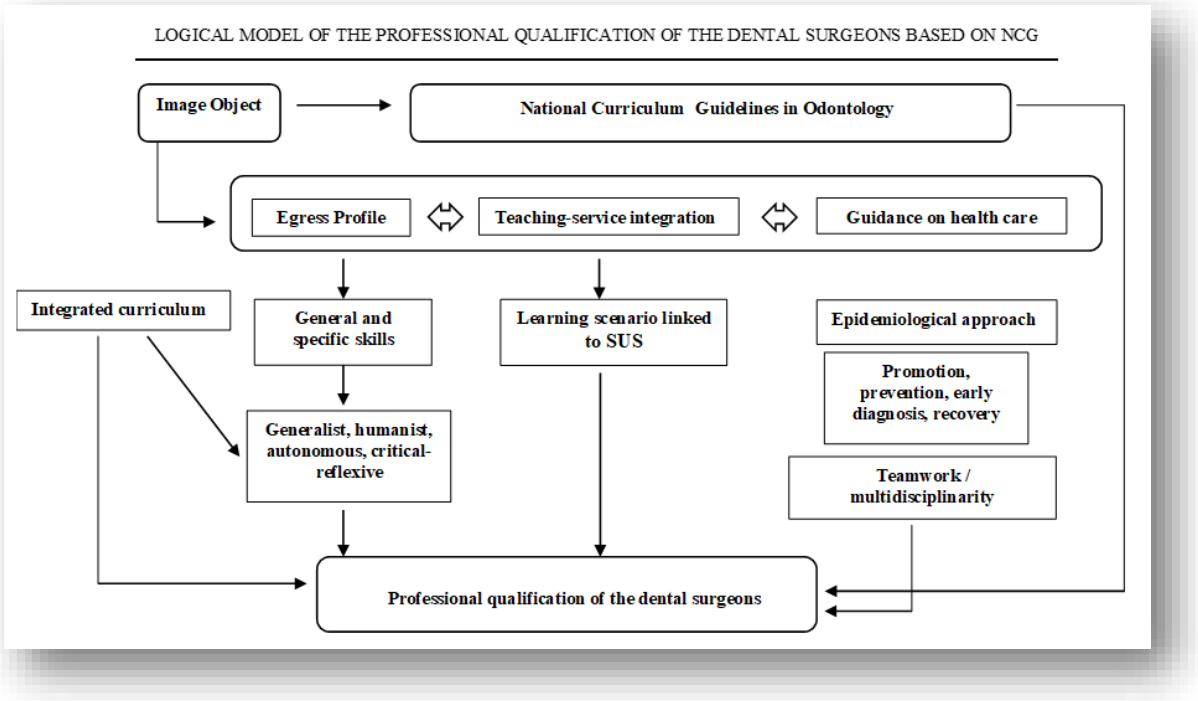

Figure 1. Template used as the basis for the analysis of the selected curricular models. Adapted from Pessoa and Noro (2015)[10]

Table 1. Summary of characteristic features found in models 1 and 2

Characteristic evaluated	CM1	CM2
Duration	10 Periods	8 Semesters
Structure	Credit hours divided between theory and practice	System of Credits
Credit hours	4140 hours	4275 hours
Complementary Activities	100 hours (2.4%)	72 hours (1.6%)
Network Activities	100 hours (2.4%)	None
Supervised Internship	840 hours (20.3%)	648 hours (15.1%)
Internship in Public Health	None	135 hours (3.1%)
Total	840 hours (20.3%)	819 hours (19.1%)
Elective Disciplines (flexibility)	60 hours (1.44%)	81 hours (1.89%)
Curricular Content (subjects)	3101 hours (74.9%)	3454 hours (80.8%)
Attempt to adapt to the local reality	Yes, class of Environmental Education and Management	None
Research Methodology	4th Period	1st Semester
Attempt to integrate basic and clinical materials	None	None

Both CMs are in compliance with Resolution No. 2 of the Chamber of Higher Education of the Ministry of Education, which requires a minimum workload of 4000 hours for graduate courses in Dentistry[11].

In both the CMs under analysis, an absence of integration between the course components was observed between the course components of both the basic and professional courses. The workload is primarily content-related, with internship activities accounting for 20.3% in CM1 and 19.1% in CM2. According to DCNs (3), such activities must comprise a minimum of 20% of the total course workload.

In both CMs, the student's contact with multi- and interdisciplinary clinical activities occurs in the advanced period of the course. Such activities could be started in the first two years of the course, introducing the teaching in diversified environments, such as basic public health care services. This would enable the student to develop an awareness of socially contextualized health problems, as well as strengthen the interaction between theory and service for the development of competencies related to leadership and multidisciplinary teamwork, as advocated by NCGs[7,12,13].

The courses are distributed according to the principal areas of study of the NCG: Biological and Health Sciences, Humanities and Social Sciences, Dentistry). They are, however, offered in a non-cohesive fashion, similar to core curriculum which was historically established more than 40 years ago and in force until the establishment of LDB (Law 9,394) in 1996[14]. The division of education between the basic and professional cycles is a remnant of the Higher Education Reform of 1968, which designed and instituted the departments for greater control of resources. Training focused on clinical activity is a manifestation of the logic of this division[15]. It is necessary, however, in the

opinion of Poi et al.,[16] that the academician understand that illness does not start in the individual nor end in the clinic, but has its beginning in a complex interrelationship between economic, cultural, social and political factors.

These directives provide for the formation of a professional with skills and abilities aimed at working in public service in response to the needs of society, as deduced by the epidemiological survey of 2010, which demonstrated a high prevalence of oral diseases and hypodontia in the Brazilian population[17].

According to the NCG, [...] *the training of a dental surgeon should take into account the health care system operating within the nation, dedicated attention to health care in the regional and hierarchical aspects of referrals and counter-referrals, and work of a team in articulation with the social context, understanding it as a form of social participation and contribution*, as set forth in Article 5.[3]

To this end, the guidelines still indicate that there must be the formation of trained professionals who are capable of making decisions which prioritize the collective judgment over that of the individual, and which has developed managerial and leadership skills within multi-professional teams. A component in the curriculum which could equip the student to this end would be a course in Collective Health, approached from an interdisciplinary perspective.

In CM1, a 120-hour course of study in Collective Health course is required during the first four semesters, along with other core subjects. This occurs while the students do not yet have contact with courses specific to Dental Sciences, which allows them to develop interdisciplinary relationships more efficiently. Furthermore, due to the lack of time dedicated to practical applications, in an environment of supervised internships, there is a lack of integration between theory and practice, which in turn eliminates the possibility of the contact of the student with the reality of the public sector, which complicates the development of the skills envisioned by NCG guidelines. In contrast, CM2 has a higher theoretical workload (162 hours) and collective health practice, including a supervised internship (135 hours), which better qualifies the student to work within the Unified Health System (SUS), insuring that the profile of graduating dental surgeons corresponds to the level of competence advocated by NCG[3].

The NCG is in alignment with SUS's guiding principles and with National Oral Health Policy Guidelines. SUS is a model of integrated and universal care which advances the promotion, prevention, protection and recovery of health. Professional training must therefore meet the expectations of the current model. In the view of Fernandes *et al.*,[18] the graduate should be capable of understanding the technical-scientific fundamentals, without abandoning the foundation of integration, and adopting a holistic view of the patient within the complex environment surrounding him, elevating dentistry into a social practice.

CM1, unlike CM2, offers the discipline of Education and Environmental Management, perhaps as an effort by the developers to contribute to the understanding and diffusion of the regional culture present in the NCG.

CM1 provides a course in scientific methodology during the fourth period, in isolation from the other courses. This is distinct from the CM2, which placed it in the initial phase, together with the core subjects. According to the NCG, the trained professional should understand the methods and techniques of research and the development of academic

and scientific work. Offering content at the beginning of the course, as in CM2, could be beneficial in the development of a critical-investigative spirit in the student, which is reinforced during the later periods of his trajectory. Neither of the models analyzed incorporated this into their programs; both have a minimum workload, which does not, as a result, provide a stimulating environment for the development of research during the course of study. Maltagliati and Goldenberg[19] shed light on a possible explanation for these observations, highlighting the role of graduate research, according to the NCG: *The expansion of the higher education network between the University Reform and the eve of the turn of the century, did not incorporate, in all its scope, the postgraduate and corresponding investment in institutional research; nor do the institutions prioritize the importance of scientific instruction in the course of study. At the turn of the 21st century, curriculum guidelines, along with proposals for expanding access, recommended new teaching-learning propositions, along with the valorization of research and social responsibility. Affirming flexibility in the organization of curriculum, the new proposals advocate curricular restructuring which, in keeping with new pedagogical approaches, emphasize not just scientific instruction, but also the consideration of teaching through research*.[19]

With respect to elective disciplines which are necessary for the formation of the desired profile of the graduate, for the institutional demands for the course and for individual flexibility as well, CM1 offers 100 hours for the development of unspecified networked activities and 100 hours for the development of elective activities. There is no way to assess whether these options in CM1 are occupied with activities which fulfill guideline requirements. There is an optional course offered (60 hours) which allows the student to choose between health-care applied technology and sign language.

Limiting the student to two electives greatly reduces the student's options, thus hindering the flexibility advocated by the NCG. However, it is in line with what has been advocated by the NCG, that educational institutions reach the objective of graduating a professional capable of organizing, handling and evaluating health care resources effectively and efficiently, as well as communicating skillfully without barriers.

In the words of Oliveira et al.,[20] [...] *communication is a process of interaction in which messages, ideas, feelings and emotions are shared. In health care, only once good communication is established can the professional identify and solve the needs of patients in a humanized and holistic way. Institutions, especially private ones, have sought to comply with the law and recommendations of the Ministry of Education and Culture (MEC) regarding the adequacy of the curricular model of pedagogical projects, inserting sign language as an elective component to comply with the humanistic, critical and inclusive profile.*

CM2 offers more hours for electives (81 hours), divided into three electives of 27 hours each. It is not, however, specified in the model what these electives should be. The English language is offered in the fourth semester, without reference to its workload or whether it is compulsory or optional. In this regard, the CM2 is in line with the NCG, which requires the mastery of at least one foreign language by the graduate.

Both models require an excessive weekly workload. CM2 is more intense, requiring 4,275 total workload hours condensed into eight

semesters. It is unspecified how much of this content refers to practical activities. Excessive curricular activities would imply less time for students to dedicate themselves to their studies.

According to Lemos,[21] [...] *if there is no time to study, nor also is there time for questioning, for critical thinking, for reflection and change. There is room only for the regurgitation of ideas and techniques. Classes become the locus of dissemination of obtained results, information and truths to be passed on, discussed and absorbed. The dimension of intellectual work is lost and it becomes difficult to reach the profile proposed by the curricular course guidelines: a critical, reflective and transformative professional*."

Regarding the evaluation of the model's clinical activities, it was observed that CM1 offers an integrated clinic as part of the course curriculum, beginning in the eighth semester and extending through the tenth, resulting in a total workload of 400 clinical credit hours. CM2 does not offer this component. The absence of this component in CM2 could generate a deficiency in the formation of the graduate, since the integrated clinic is responsible for recovering a complete and unique dental practice, favoring a generally-trained professional with a strong technical-scientific, humanistic and ethical foundation prepared to promote health, with an emphasis on the prevention of prevalent oral diseases and an awareness of the need for continuing education, as recommended in the NCG.[22]

In neither of the CMs was there a glimmer of the existence of programs to foster research or continuing education. This tendency reflects a limited understanding of academic formation. An exclusive focus on teaching, namely, the mere transmission of knowledge without the development of an ethical-political-social understanding of differing cultural realities, becomes sterile. This discourages problem solving and the ability to discover solutions for challenges presented.

In the CMs, there was a disassociation between teaching, research and extension, "the holy trinity". The inseparability of teaching-research-extension should, according to Cordeiro and Andrade,[23] be the guiding principle of quality control within universities, since it results in an autonomous, competent and ethical university student.

4 FINAL CONSIDERATIONS

The implantation of the NCG opened the way for the restructuring of model courses for dentistry in Brazil. However, changes in legislation were not sufficient to change a system of training. To analyze and rethink the function of course guidelines, while focusing its dynamics, knowledge and practices, should be goals for those involved in the process of training dental surgeons.

In view of the critical analysis of the two curriculum models of dentistry courses of differing educational institutions, using the NCG as a point of reference, it was understood that even though both structures were in harmony with the ideals advocated by the NCG, they each contain points of fragility, principally in the integration of theory and practice, as well as in stimulating research.

RESUMO

Avaliação de matrizes curriculares frente às DCN para os cursos de graduação em Odontologia

O termo currículo refere-se ao percurso seguido pelo estudante em uma instituição de ensino superior desde o momento em que inicia seu processo de formação profissional até a graduação. As Diretrizes Curriculares Nacionais (DCN) para os cursos de graduação em Odontologia, instituídas pela Resolução CNE/CES 3, de 19 de fevereiro de 2002, definem os princípios, fundamentos, condições e procedimentos da formação de cirurgiões-

dentistas, primando pela formação de um profissional integral. As Instituições de Ensino Superior (IES) têm em mãos o desafio de construir projetos pedagógicos que operacionalizem esse conceito, de modo a atender as demandas da sociedade. Neste contexto, este estudo de abordagem qualitativa e exploratória objetivou analisar criticamente as matrizes curriculares de dois cursos de Odontologia, pertencentes a IES localizadas em regiões distintas do país. A metodologia utilizada considerou um modelo lógico para avaliação da formação do cirurgião-dentista com base nas DCN, proposto por Pessoa e Noro. Foram analisadas as dimensões referentes à integração entre os ciclos básico e profissionalizante, ao desenvolvimento de competências e habilidades desejáveis, a formação profissional, além do desenvolvimento do estágio curricular e atividades complementares. Foi verificado que as duas estruturas curriculares estão em consonância com os ideais preconizados pelas DCN, apesar de conterem pontos que não fortalecem a formação profissional do egresso. Observou-se que ambas as matrizes apresentam potencialidades e fragilidades, que inspiram discussões.

Descritores: Recursos Humanos em Odontologia. Educação Baseada em Competências. Odontologia. Currículo.

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