Development of skills and competencies in the Public Health System of Catalonia, Spain

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ABSTRACT

The objective was to describe and discuss the academic experience in the Public Health System of Catalonia, (Spain) by the *Programa Ciência sem Fronteiras*, relating it to *Diretrizes Curriculares Nacionais* (DCN) for Dentistry Courses in Brazil; characteristics and productivity of the dental health services and the computerized system of the Primary Center Care (PCC). It is a descriptive study carried out in a PCC of Catalonia (Spain) in 2012, in the city of Sant Andreu de la Barca. It contains bibliographical analysis of guides, manuals, books and articles of national and foreign journals published on the subject, and secondary data of the PCC, obtained in spreadsheets and website of the System Generalitat de Catalunya. The results showed that 3.316 patients received dental care, of which the dental surgeon performed 3.141 and the oral health technique 175; 4.515 consultations, 1.421 exodontias and 586 dental examinations were carried out in schoolchildren. The computerized system used represented an important technological tool, since all the patient's health information was interconnected among PCC professionals, which made the work process more practical and organized. It was concluded that the academic experience in the public health service of another country, starting from Primary Health Care, can contribute to the academic formation of the Brazilian student, since it is directly related to the skills and competences established in the DCN as: care health in an integrated and continuous way; critical analysis of problems; decision making; leadership; administration and management; communication and continuing education.

Descriptors: Education, Higher. International Educational Exchange. Curriculum. Health Services. Primary Health Care.

1 INTRODUCTION

Science without Borders is a program that promotes the strengthening, expansion and internationalization of science, technology, innovation and Brazilian competitiveness through exchange and international mobility[1]. The program aims to invest in the preparation of highly qualified personnel in skills and abilities necessary for the advancement of society and knowledge, to increase the presence of researchers and students in various levels in institutions of excellence abroad, to stimulate the international insertion of Brazilian institutions, creating similar opportunities for scientists and foreign students, expanding innovative knowledge of technology industry personnel, and attracting young scientific talents and researchers to work in Brazil[1].

The Federal University of Pelotas participated in the program that includes Biology, Biomedical Sciences and Health, among others. This participation allow experiences in health systems of several countries for the students of the course of Dentistry, contributing to its evolution as a professional with "generalist, humanistic, critical and reflective" training to work at all levels of health care based on technical and scientific rigor. It enables to carry out activities related to the oral health of the population based on ethical, legal, social, cultural and economic principles of its environment, directing its action towards the transformation of reality for the benefit of society"[2]. Thus, it is important that the academic have opportunities to develop skills and competencies for the following activities: health care, decision-making, communication, leadership, management and lifelong education.

At the same time, Brazilian Dentistry has undergone several advances in relation to a greater performance in primary care. This has been occurring with the Family Health Strategy, which, among its main purposes, focus on the reorganization of basic health care services[3,4]. According to the Alma Ata Declaration (1978), primary health care is essential health care based on methods and scientifically based practices and socially acceptable technologies, made available to all individuals and families in the community through their full participation and with a cost that the community and the country can bear in each and every stage of their development[5].

Thus, considering the process of change happening in Dentistry in Brazil, the description of the academic experience in a public health service in another country, starting from primary health care, may contribute to the academic formation of the Brazilian student class through the dissemination of new knowledge, experiences, information, ideas and clinical practices, and thus collaborate with the search for improvements to the reality of Brazil.

Public health services in Spain have three care models: public model (through the primary care network), mixed model (public and private) and the PADI model (Children's Dental Care Program, with public and private financing)[6]. The Autonomous Community of Catalonia has a public assistance model formed in 1990 with the regulation of actions on the right to health protection; all citizens of Catalonia have access to services based on the principles of universalization, integration, efficiency, organization of services, decentralization of management and community participation[7]. The services are made up of Primary Care Centers (CAP) that have Primary Care Teams formed by a group of health professionals, including oral health and administration professionals who work with a computerized electronic system (e-CAP), which allows health professionals to share health information for all patients in an integrated manner[7].

The objective of this study is to describe

and discuss the academic experience in the Public Health System of Catalonia (Spain) by the Science without Borders Program, relating it to the National Curricular Guidelines (DCN) of the Undergraduate Course in Dentistry of Brazil, in addition to describing the characteristics and productivity of the dental health services and the computerized system used in the Primary Care Centers (CAP).

2 METHODS

A descriptive study was carried out by means of documentary bibliographic analysis and secondary data. Documents obtained from guides, manuals, books and articles of national and foreign journals published on the subject were analyzed and consulted, as well as the website of the *Generalitat de Catalunya* System[8].

The research was carried out in a Primary Care Center of Catalonia, Spain, located in the city of Sant Andreu de la Barca, which has a population of 27,306 inhabitants. The primary care center is type I, which has a multiprofessional team of five pediatricians, twelve family doctors, fourteen nurses, a nurse who accompanies pregnant women, a gynecologist, a psychiatrist, a social worker, nine administrative assistants, a secretary of management, a head of administrative staff, a director of the center, and an assistant director[7].

Complementing the multiprofessional team, a dental surgeon and a oral health technician work in oral health attending to different target groups, from children to the elderly, pregnant women and schoolchildren, from Monday to Friday, from 9:00 a.m. to 2:00 p.m. Thus, we analyzed the documents and guidelines that guide and describe the use of electronic medical records through a computerized system of Primary Care Centers of Catalonia, called *e*-CAP (*estació-Clínica d'Atenció Primària*), in which the data obtained during the care of each patient are recorded at each consultation. The *e-CAP* was implemented in 2005 and is used in all Centers. It provides information interconnected within the Autonomous Community of Catalonia[6,9].

In addition, secondary data on dental procedures performed at the Sant Andreu de la Barca Primary Care Center in 2012[10] were obtained from the records made on the dentist's computer and requested from the data controller of the Center, with authorization from the *Comitè Ètic D'Investigació Clínica de l'IDIAP Jordi Gol*, with code no. P15/121, and used in this study. The data requested and made available were the number of first consultations, scheduled appointments, urgencies, fluoride application, inspection in schoolchildren, supragingival scaling in pregnant women and schoolchildren, and exodontia.

After obtaining secondary data in a *Microsoft Office Excel* spreadsheet, they were organized into tables and graphs, which were evaluated using descriptive statistics and percentages. From the description of the experience in the Public Health System of Catalonia, a relation was made with the general skills and abilities aiming the training of the dental surgeon according to the National Curricular Guidelines (DCN) for the Dentistry Courses in Brazil.

3 RESULTS

A one-hundred-and-sixty-five-hour internship with a dental surgeon (DS) and an oral health technician (OHT) was conducted at a Primary Care Center. In 2012, of the 27,306 inhabitants of the municipality of Sant Andreu de la Barca, 12.4% received dental care at the Primary Care Center, of which 3,141 were attended by a DS and 175 by an OHT. Of the total number (3,316) of patients, 5.3% received OHT care. In addition, 42.5% of the patients seen in

the Public Health System were of foreign nationality. This information demonstrates that the system provides care coverage for both Spaniards and foreigners, and there is no distinction of types of procedures for one group or another. 4,515 consultations were performed for Spanish and foreign patients (table 1).

During the year, there were 1.4 visits per patient. Considering all 260 working days of the year, the average number of appointments was 17.7 per day. In five working hours, it represented 3.5 appointments/hour. According to the type of care received, for Spaniards and foreigners, there were 2,958 first visits, 2,246 urgencies and 1,743 scheduled appointments (table 2).

Table 1. Number of consultations and of Spanish and foreign patients who received dental care in the CAP

	Number of patients	**Number of appointments**
Dentist surgeon		
Spaniards	1,823	2,552
Foreigners	1,318	1,786
Subtotal	*3,141*	*4,338*
Oral Health Technician		
Spaniards	84	85
Foreigners	91	92
Subtotal	*175*	*177*
Total	**3,316**	**4,515**

CAP: (Primary Care Center)

Table 2. Number of appointments for first consultations, urgencies and scheduled appointments

	First Consultations	**Urgencies**	**Scheduled appointments**
Dentist surgeon			
Spaniards	1,336	651	526
Foreigners	1,595	1,595	1,186
Subtotal	*2,958*	*2,246*	*1,712*
Oral Health Technician			
Spaniards	-	-	17
Foreigners	-	-	14
Subtotal	-	-	*31*
Total of appointments*	**2,958**	**2,246**	**1,743**

* The total number of scheduled appointments, urgencies and first consultations totals 6,947 appointments.

From the data provided by CAP, the number of procedures performed in Spanish and foreign patients is presented in Table 3. In 2012, 1,421 exodontia procedures were performed at the Primary Care Center, representing 2 exodontia procedures per patient that had indication for the procedure (table 3). Among the procedures performed at the CAP, restorative procedures were not offered even though such procedures were recommended in official documents on public oral health services in Catalonia[6].

Table 3. Number of patients attended per professional according to the procedure performed

Procedures	Nationality of the patient	Number of patients (DS)	Number of patients (OHT)
Exodontia			
	Spaniards	435 (923*)	-
	Foreigners	87 (152*)	-
	Does not specify**	190 (346*)	-
Inspection in schoolchildren			
	Spaniards	290	-
	Foreigners	45	-
	Does not specify**	251	-
Supragingival scaling			
	Spaniards	-	40
	Foreigners	-	38
Fluoride in children			
	Spaniards	-	27
	Foreigners	-	38
Fluoride in pregnant women			
	Spaniards	-	1
	Foreigners	-	2

* Number of procedures performed (only available for exodontia). DS: Dentist surgeon; OHT: Oral Health Technician.
** Information not filled in the patient's medical record

Regarding data on collective procedures, it is possible to highlight the examination of oral conditions of the students carried out annually. In 2012, 586 schoolchildren aged 6 and 12 years-old were examined and provided with oral hygiene guidelines and healthy eating. The examination consists of the detection of caries, missing teeth, presence of restorations, presence of plaque, periodontal and mucosal evaluation, occlusion, need for treatment and reporting for parents or guardians about the oral conditions found, in addition to oral health education activities and preventive practices (topical application of

fluoride) (table 3).

4 DISCUSSION

This study describes the academic experience in the Public Health System of Catalonia, Spain. Having been carried out through the Split-Site Undergraduate Scholarship Program, Science without Borders/CNPq, this study exemplifies the main objective of the program, which is to invest in the training of highly qualified personnel and in skills and abilities necessary for the advancement of society and knowledge, as well as increasing the presence of researchers and students at various levels in institutions of excellence abroad[1].

The internship period complemented what had been developed in the curriculum of the Faculty of Dentistry of the Federal University of Pelotas in relation to the skills and competences foreseen by the DCN[2]. The DCN for the Dentistry courses propose, among the skills and competences to be developed during the professional formation, that it be able to act in the health care, planning and executing actions of health promotion and prevention of diseases. Among the activities developed at the CAP of the city of Sant Andreu de la Barca, students could follow and participate in oral health care guidelines directed to pregnant women, children, patients with poor hygiene conditions and oral health, as well as reviews of oral conditions of schoolchildren in the public schools of the municipality carried out in all children aged 6 and 12 years-old[11]. This allowed the academic student to know and follow the care for different target audiences, as well as to follow the oral conditions of the students.

The DCN presuppose that health care actions are carried out in an integrated and continuous way with the various instances of the health system and with a high quality standard. To know the computerized system used in the Public Health System of Catalonia, where all the patient's health information is interconnected among the professionals of the CAP, making the workplace more practical and organized, was also an opportunity to have an experience related to what was already happening in Brazil, considering the implementation of the National Health Card interconnected to the e-SUS (Sistema Único de Saúde, Unified Health System) at a national level, which contributed to the organization of the Brazilian health services[12,13].

This is also reflected on another aspect provided for in the DCN, which is the appropriate and efficient use of technologies. A digital medical record is linked to the general health information and procedures recorded by family doctors, pediatricians, psychiatrists and gynecologists of the same CAP, who also accompany the patients, and from which information can be obtained, such as chronic pathologies that the patient has and medications of continuous use; it facilitates dental care, since oral health reflects directly on general health. This interconnected access to the general and oral health information of the patient is essential for a good clinical care and for the diagnosis and solution of the pathology. It helps to makes the correct referral of the patient.

Appropriate use of the workforce is also pointed out in the DCN. Acting in the clinic and in collective actions along with an oral health technique was also an opportunity for the academic student. Among the total number (3,316) of patients attended in 2012, 5.3% of the patients were seen by the OHT, with procedures involving mainly supragingival scaling and topical application of fluoride, which also allowed the academic follow up on

their clinical practice and allowed acknowledging the further training that could be made in working processes of oral health[14]. It is known that more Brazilian municipalities are incorporating the Family Health Strategy, which also foresees the incorporation of the Oral Health Team[15,16]. Also in relation to the work with the OHT, it is stated in the DCN, with regard to communication, that the DS should be accessible and confidential in the interaction with other health professionals and the general public. The relationship between DS and OHT was extremely in tune with the needs of the work and the demands of the system, as well as skills and practicality to solve consultation decisions, scheduling, instrument cleaning and organization of the work environment. This aspect is also set forth in the DCN in the topic of administration and management of the workforce, physical and material resources and information.

Another relevant fact is that among the 3,316 patients treated in the Public Health System of Catalonia, 42.5% of the patients were foreigners who, for some reason, lived in Spain and then settled in the country. All patients accessed the service through the Individual Health Card, in which a family member who was a worker and had the card could make it available to other members of their family[17]. This form of system organization and access to services has been shown to provide coverage for all users and to recognize dignified living conditions and health as a right[2].

Regarding the number of consultations performed, there was 1.4 consultations per patient in 2012. This value is within the expected parameters (0.4-1.6 basic actions in dentistry/inhabitant/year) for the Unified Health System[18]. Considering all 260 working days of the year, the average number of consultations was 17.7 per day. In five hours of work, it represented 3.5 appointments/hour, which demonstrated agility in work processes allied to the practicality and organization of the work environment in which care was taken.

Regarding the procedures performed, 1,421 exodontia procedures were performed, and procedures such as restorations, endodontics or prostheses were not offered by the CAP. This system was still concentrated in mutilating procedures in detriment of conservative procedures, which were recommended by guides and manuals on the Health System; in the CAP, where the internship was developed, they were not performed. Thus, this was related both to what this CAP offered as procedures and to the need to supply a very large demand for extractions, considering that in most of these cases (periodontal disease and great loss of tooth structure due to caries), other conservative procedures would not be enough to solve problems. In many other cases, before extraction, the DS would talk to the patient about the situation in order to discuss other possibilities of treatment that the service did not contemplate.

The DS posture has always been very objective and decisive in the dialogues with patients and co-workers, which is directly related to the DCN[2]. It was possible for the academic student to experience another aspect predicted in the DCN concerning professionals able to take a leadership position. This involves commitment, accountability, empathy, ability for effective decision-making, communication and management, in all health care and work processes scenarios, including dental clinics and meetings with the multiprofessional team.

Along with DS and OHT, there is a continuous process of learning and access to

new information through discussion of clinical cases using panoramic digital radiography, always based on scientific evidence, which is another proposal of the DCN, besides seminars involving CAP professionals, participation in courses and interaction with professionals and trainees from other countries such as Portugal and Venezuela. This experience can be related to another presupposition of the NCD, which is related to the process of permanent education[2]. The ability to continuously learn both in training and in practice should be stimulated and developed through academic/professional mobility, training and cooperation through national and international networks.

Regarding the quality of the service found in the CAP, together with the use of computerized systems, it could be said that having a quality dental office, a digital record system and access to digital panoramic radiography of each patient provided favorable conditions of efficiency and practicality to the processes. It is known that much is done in dental care at the Basic Health Units of Brazil, and the insertion of technological and computerized means are important tools to better serve the user and the work of the dentist surgeon in a more complete and effective way. This also accompanies the new generation of trained dental surgeons who seek to find new technologies and work environments that are more practical and modern[19,20]. Thus, the search for public policies for dental computerization, that is, the modernization of the public health system in UBSs is pertinent in order to follow the evolution of the computerized world in which they live, as well as contribute positively in the execution of public health services.

5 CONCLUSIONS

The results referring to the CAP of Catalonia indicated that 3,316 patients received dental care; 3,141 procedures were performed by the dental surgeon and 175 by the oral health technique. There were 4,515 consultations, 1,421 exodontia procedures and 586 examinations of the oral conditions of schoolchildren. The computerized system represents an important technological tool since all the patient's health information is interconnected among CAP professionals, which makes the work environment more practical, more organized and more effective.

In relation to DCN, the experience improved the development of the ability and the knowledge to carry out the clinical and radiographic diagnosis of oral pathologies for the academic student, as well as achieving a level of performance compatible with the demand of the public health system, both Spanish and Brazilian. Finally, taking into account all experiences of clinical practice and professionalism learned during the internship at the CAP of Catalonia, it can be stated that the general skills and abilities expected during the training of a dental surgeon should be provided during undergraduation in order to contribute to the training of a qualified and competent professional to work in the national public health system.

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RESUMO

Desenvolvimento de habilidades e competências no estágio no Sistema de Saúde Pública da Catalunha, Espanha

O objetivo foi descrever e discutir a experiência acadêmica no Sistema de Saúde Pública da Catalunha (Espanha) pelo Programa Ciência sem Fronteiras, relacionando-a com as Diretrizes Curriculares Nacionais (DCN) para os Cursos de Graduação em Odontologia do Brasil; características e produtividade dos serviços de saúde da Odontologia e do sistema informatizado do Centro de Atenção Primária (CAP). Trata-se de um estudo descritivo de uma experiência realizada em um CAP da Catalunha em 2012, na cidade de Sant Andreu de la Barca. Contém análise bibliográfica documental de guias, manuais, livros e artigos de revistas nacionais e estrangeiras publicadas sobre o assunto, e dados secundários do CAP, obtidos em planilhas e página da internet do Sistema *Generalitat de Catalunya.* Os resultados mostraram que 3.316 pacientes receberam atendimento odontológico, sendo 3.141 realizados pela cirurgiã-dentista e 175 pela técnica em saúde bucal; foram realizadas 4.515 consultas, 1.421 exodontias e 586 revisões odontológicas em escolares. O sistema informatizado utilizado representava uma ferramenta tecnológica importante, pois todas as informações de saúde do paciente eram interligadas entre profissionais do CAP, o que tornava o processo de trabalho mais prático e organizado. Concluiu-se que a experiência acadêmica em serviço de saúde pública de outro país, tendo como ponto de partida os cuidados primários de saúde, pode contribuir na formação acadêmica do estudante brasileiro, pois se relaciona diretamente com as habilidades e competências dispostas nas DCN, tais como a atenção à saúde de forma integrada e contínua; análise crítica dos problemas; tomada de decisões; liderança; administração e gerenciamento; comunicação e educação permanente.

Descritores: Educação Superior. Intercâmbio Educacional Internacional. Currículo. Serviços de Saúde. Atenção Primária à saúde.

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