

## Dental education in Peru

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**Abstract:** This paper provides information about Peru's dental history and dental school system, including the curriculum and dental licensure. With the increase in the number of dental schools in Peru, the number of dentists is also increasing. Until 1965, Peru had only three dental schools; currently, there are 14. Four of these dental schools are public, and ten are private. A five- or six-year dental program leads to the B.D.S. degree. After successful completion of a thesis defense or competency examination, the D.D.S. degree is awarded. The D.D.S. is mandatory for practicing dentistry in Peru. Currently, there are approximately 14,000 active dentists, with a dentist-patient ratio of approximately 1:2,000. (*J. Oral Sci.* 50, 341-344, 2008)

**Keywords:** dental education; dental school curriculum; dental license; dental practice; culture; Peru.

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### History of dentistry and dental education

Peru is a federation of 24 departments (which are equivalent to states in the U.S.A.) and the constitutional province of Callao, which is Peru's most important port.

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Peru covers a land area of 1.28 million km<sup>2</sup>, and has a population of 29 million (1). The capital city is Lima, with an area of 34,800 km<sup>2</sup> and a population of 7.8 million, accounting for nearly one third of Peru's total population. Peru has two official languages, Spanish and Quechua, the latter being an Amerindian language.

Peru was the center of the powerful Inca Empire until the Spanish conquistadores led by Francisco Pizarro invaded in 1532. Peru then became the richest and most powerful of the Spanish colonies of South America. Peru declared its independence from Spain in 1821 (2). The independence war in 1824 successfully liberated Peru.

The history of dentistry in Peru goes back to 1868, when dental education was established as part of medical education at the Universidad Mayor de San Marcos. In 1920, dental education became independent from medical education. In the 1960s, Peru had only three dental schools: the Universidad Mayor de San Marcos, the Santa Maria de Arequipa, and the Universidad San Luis Gonzaga de Ica (3).

Table 1 summarizes the details of dental schools accredited by the Colegio Odontologico del Peru (COP). Today, Peru has 14 COP-accredited dental schools. Seven of these schools are located in Lima, two being national and five private. The remaining dental schools are located in other Peruvian cities such as Ica, Arequipa, Trujillo, Cerro de Pasco, Huancayo-Junin, and Cusco. Two of these schools are national (run under the auspices of the federal government), and five are private. Peru also has some non-accredited dental schools, but this review focuses

only on COP-accredited schools.

### **Dental school entrance examinations**

Peruvian dental personnel include dentists, dental assistants, and laboratory technicians. There are no laws or regulations in Peru regarding dental assistants or laboratory technicians. Examples of tasks performed by dental assistants include taking radiographs and impressions. There are no dental hygienists in Peru. Because of the lack of statutory regulations governing dental assistants and laboratory technicians, this review focuses only on the education of dental students at COP-accredited dental schools.

Dental school applicants must have graduated from high school and must take an independent matriculation entrance examination at each dental school to which the applicant applies. No undergraduate pre-dental study is needed prior to entry, and the dental school program starts in March each year.

The current admission of prospective students to, for example, the Universidad Peruana Cayetano Heredia (UPCH) is based on two different procedures. One focuses on the results of a standard admissions test, and the other on results from a pre-university center, based purely on academic merit. However, not all dental schools have a pre-university center. These different admission procedures guarantee any student access, irrespective of personal background (4).

Tuition for the national dental schools is free. However, fees for textbooks and dental models for bench-top practice are required. Tuition and fees for the private dental schools vary. For example, UPCH costs approximately U.S. \$10,000 per year.

Currently, approximately 800 students are admitted to the Peruvian COP-accredited dental schools per year. An increase in the proportion of female students has been achieved, in accordance with international trends (4,5). For example, at UPCH, each class is composed of students aged between 16 and 22. The male:female student ratio is 1:2.5 (6).

### **Dental school curriculum**

Dental education in Peru involves either a five- or six-year program. Ten schools offer five-year programs, and four offer six-year programs. Currently, dental schools in Peru stipulate no single, standard curriculum. The Ministry of Higher Education, the Ministry of Health, and the COP have been working together to promote scientifically based dental education. Dental education in Peru is now taught mainly in Spanish. English is also necessary in order to read and understand the dental literature. The academic

calendar of Peruvian dental schools runs from March to December. The academic year is divided into two semesters, each of about 18 weeks. Peru dental schools administer examinations at the end of each semester. These examinations are conducted by a course director, such as a department chairperson or professor. UPCH will be used as an example, because the same curriculum is not taught in all schools. Table 2 summarizes the dental school curriculum for the five-year program at UPCH.

The dental education curriculum in Peru comprises two years of mainly preclinical didactic and laboratory courses and three or four years of mainly clinical training supervised by faculty members. The third year of the course includes lectures and laboratory coursework as well as an introduction to clinical dentistry. Fourth-year students undertake didactic clinical and laboratory coursework. Fifth- and sixth-year students participate mainly in patient care. This includes a ward round rotation in a medical hospital and a community health center. Didactic and clinical curriculum credits at UPCH are 90 and 131, respectively. One credit is equivalent to 17 clock hours in didactics and 34 clock hours in clinics, respectively. Accordingly, didactic and clinical curriculum clock hours at UPCH are 1,530 and 4,454, respectively, giving a grand total of 5,984 clock hours.

At UPCH, gaining experience in low-income urban communities is the first stage, and the rural internship is the second stage of working for the community. During the second stage, fifth-year students spend four months living in rural communities located in Peruvian highland or jungle towns. Each student is assigned to a community. Full-time dedication provides a more intense and sustained experience than that in the first stage spent in low-income urban communities (6). In these rural and remote areas with few roads, there are minimal supplies of electricity and running water, and only simple radio communication. During the day, the sun is very intense, and at night, temperatures drop to below freezing (7). Decades ago, there was a tragic event in which a dental student was killed in a terrorist attack during community service in the Peruvian highland. After this event, the rural internship was suspended, but was resumed in 2002. The new rural internship started around Lima, but the area of service is gradually being expanded to remote areas further afield.

As stated previously, dental education in Peru is either a five- or six-year program, which results in a Bachelor of Dental Surgery (B.D.S.) degree. After being awarded the B.D.S., either a thesis defense or a competency examination is required. Successful completion of either qualifies the candidate as a Doctor of Dental Surgery (D.D.S.). The D.D.S. degree is mandatory for practicing

Table 1 Dental schools in Peru

University	City	Establishment	National/Private	Years of dental program	Graduates per year	Post graduate certificate program	Master Degree program	Ph.D. Degree program
Universidad Nacional Mayor de San Marcos	Lima	1868	National	5	110	Yes	Yes	Yes
Universidad Peruana Cayetano Heredia	Lima	1970	Private	5	80	Yes	Yes	Yes
Universidad Nacional Federico Villarreal	Lima	1972	National	6	83	No	No	Yes
Universidad San Martín de Porres	Lima	1983	Private	6	50	No	Yes	No
Universidad Inca Garcilaso de la Vega	Lima	1985	Private	6	50	Yes	No	No
Universidad Científica del Sur	Lima	2000	Private	5	60	No	Yes	Yes
Universidad Alas Peruanas	Lima	2001	Private	5	40	No	Yes	No
Universidad Nacional San Luis Gonzaga de Ica	Ica	1965	National	5	55	No	Yes	Yes
Universidad Santa María de Arequipa	Arequipa	1965	Private	6	40	Yes	No	No
Universidad Nacional de Trujillo	Trujillo	1981	National	5	55	No	Yes	Yes
Universidad Peruana de los Andes	Huancayo-Junin	1993	Private	5	55	No	No	Yes
Universidad Daniel Alcides Carrion	Cerro de Pasco	2005	Private	5	40	No	No	No
Universidad Andina de Cusco	Cusco	NA	Private	5	40	No	No	No
Universidad San Antonio de Abad	Cusco	NA	Private	5	40	No	No	No

NA; Data not available

Table 2 Universidad Peruana Cayetano Heredia dental curriculum

Year	Semester	Subject	Credits		Clock hours			
			Didactic	Clinic	Didactic	Clinic		
1	1	Introduction to Philosophy	3		51			
		Introduction to Social Sciences	3		51			
		Introduction to Art	2		34			
		Language I	2		34			
		Mathematics	5		85			
		Chemistry I	5		85			
		Biology	5		85			
		Physics	5		85			
		Language II	2		34			
		Psychology Applied to Odontology	1		17			
		Chemistry II	5		85			
		Peru's Social Studies: Health and Disease Process	3		51			
		General and Stomatological Anatomy	7		119			
		Biochemistry	3		51			
		Histology	6		102			
		Stomatological Diagnosis I	9		153			
		Physiology/ Pharmacology	4		68			
		Microbiology	5		85			
		Social Odontology I		2		68		
2	1	Integrated Adult Dental Clinic I		13		442		
		Integrated Pediatric Dental Clinic I		5		170		
		Stomatological Diagnosis II	4		68			
		Statistics I	1		17			
		Social Odontology II		2		68		
		2	2	Integrated Adult Dental Clinic II		11		374
				Integrated Pediatric Dental Clinic II		5		170
				Stomatological Diagnosis III	3		51	
				Statistics II	1		17	
				Social Odontology III		3		102
Social Odontology III				3		102		
3	1	Integrated Adult Dental Clinic III		14		476		
		Integrated Pediatric Dental Clinic III		6		204		
		Stomatological Diagnosis IV	3		51			
		Social Odontology IV		2		68		
		2	2	Integrated Adult Dental Clinic IV		11		374
				Integrated Pediatric Dental Clinic IV		5		170
				Stomatological Diagnosis V	2		34	
				Scientific Research Methodology	1		17	
Social Odontology V		3		102				
4	1	Social Odontology Internship		12		408		
		2	2	Integrated Adult Dental Clinic V		13		442
				Integrated Pediatric Dental Clinic V		6		204
				Stomatological Hospital Internship		18		612
		5	3	3	Total	90	131	1530

Didactic 1 credit = 17 clock hours

Clinic 1 credit = 34 clock hours

dentistry in Peru. The mean age of dental school graduates at the UPCH is 23.1 years (8).

Several postgraduate programs are also available in Peru. Specialist programs are clinically oriented, and the duration of the programs varies. After successful completion of the specialist program, a candidate is eligible for the two-year master's degree program. Ph.D. programs are also available. The programs offered at each university are summarized in Table 1. Some graduates pursue post-graduate dental education in the UK, Spain, United States, Japan, or other countries.

### Dental license and practice

Peru does not employ national or state dental licensure examinations such as the National & State Board Dental Examinations that are used in the U.S.A. However, for practicing dentistry, Peru requires the D.D.S. degree.

Private dental health insurance is not common in Peru, and there is no government-funded national dental health insurance system. Most adult dental services are provided at private practices with a fee-for-service payment system. The government oral health care budget is inadequate for meeting the increasing oral health needs of the population, particularly the treatment of dental caries, periodontal disease, and provision of dentures. Peru has few orthodontists, and treatment is too expensive for most people (9).

The shortage and unequal distribution of dentists and facilities limit access to oral health services in many parts of the country. Dentists in both public services and private practices are concentrated in Lima. Access to dental care is particularly difficult in rural areas. In these areas, the government dental service is the main provider of care. Those who wish to work for the government public dental service are requested to participate in a mandatory year of government service after graduation.

In the academic arena, in order to become a faculty member at a Peru dental school, one must start as a clinical instructor. Currently, dental schools are trying to attract faculty members who have completed specialty training or a master's degree.

Recently, the number of dental schools has increased,

as has the number of dentists. According to an estimate based on the number of registered dentists, in 2000 Peru had approximately 9,000 dentists. In 2007, there were approximately 14,000 dentists registered under the COP, meaning that there was a ratio of one dentist for every 2,000 people.

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