OPTOMETRY IN THE AMERICAS

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Chapter Overview

The profession of optometry in the Americas, like other regions of the world, differs from country to country in definition, historical evolution, scope of practice, recognition, regulation, training and status among the other health care professionals. Among the eye care and vision providers, optometry is but one profession which addresses visual health. Outside Canada and the United States, the main providers of eye care in the Americas are ophthalmologists, and in the course of the development and establishment of the optometric profession, other professional providers have also emerged—ophthalmic assistants, medical technicians in optometry, medical technologists in optometry, opticians, contactologists, orthoptists and refractionists. The level of training and regulation of these professionals varies from country to country as does their scope of practice and their role in vision and eye health care.

Health systems, health care and health status in the Americas are diverse between countries and sub-regions. This chapter will present an overview as summarized by the Pan American Health Organization. The chapter will review some of those differences, highlighting the history of the development of the profession of optometry, the legal and professional status of optometry in the Americas, as well as the distribution of optometrists across the region. The epidemiology of blindness and visual impairment and its economic impact across the region will be presented in the context of VISION 2020.

Four case studies will be presented with discussion questions that exemplify the situation in the region. “The Story of Carlos Rojas” epitomizes the struggle that optometrists face in Argentina where the profession is not recognized legally. “How Rolando Became an Optometrist in Guatemala” describes the process of becoming a trained optometrist and the social responsibility of the profession. “How much eye care is enough for Jamaica?” is an analysis of the human resources available in the island nation, and is representative of access to eye care in many nations around the world. “Is Cuba’s ‘Misión Milagro’ really a miracle?” describes an intra-regional cooperation project for the development of eye care in the most impoverished countries in the region.
Objectives

On completion of this chapter, the reader should be able to:

1. Trace the regional characteristics of health care and health care agents including the interplay between determinant social and political factors, and shifts in health care models
2. Compare and contrast the differences in the scope of practice, education, and regulation of optometry in the region as they relate to the World Council of Optometry’s global definition of optometry
3. Appreciate the dynamics of the establishment of the profession in the region as compared to the history of the optometric profession in the USA
4. Describe the distribution of eye care providers in the region
5. Compare and contrast the economic burden of eye care in the region
6. Interpret the epidemiology of visual and ocular conditions in the region
7. List which countries currently recognize optometry legally, have educational training opportunities in optometry, and have organized professional associations in optometry
8. Discuss and illustrate the contemporary issues facing optometrists in the region

Demographics of Latin America

As discussed in Section 2 of this textbook, the determinants of health such as security, trade, technology, poverty and economic levels, political systems, language, religion, physical and social environment, education levels, culture and health belief systems and their inequalities are diverse across the region and can not be generalized. There are pockets of Native American populations which retain their traditional language and customs, and there are many people with heritage from other parts of the world. Many Caribbean residents claim African or European roots, while much of Latin America was colonized by Spain, England, Portugal or France. English and Spanish are the two most common languages, followed by Portuguese and French. Most countries in the Americas are democracies, while a few countries have tendencies toward socialism or communism. Transnational conflicts are currently uncommon in the Americas. Internal violence, however, is common. In the Americas, literacy rates vary widely from very low to very high. Some of the richest and poorest countries of the world exist here. The status of human and economic development tends to be high or mid level. See the United Nations Human Development Reports for specific indicators about all countries around the world at www.undp.org¹.
Health Care Systems in the Americas

A health system is understood to comprise of the set of institutions responsible for interventions in society that are mainly responsible for health. These health interventions or actions embrace care for individuals and their environment for the purpose of promoting, protecting, or restoring health, or compensating for permanent disabilities, regardless of whether health institutions are public, governmental, non-governmental, or private.

The Pan American Health Organization (PAHO) is an international public health agency that serves as the Regional Office of the Americas for the World Health Organization (an agency of the United Nations system). According to PAHO 2008 General Director Dr. Mirta Roses Periago, PAHO is “the Home for Health in the Americas strengthening actions in public health and improving the social protection in health for our populations.”

Those who are interested in studying the health care systems of the region, examining the main causes of morbidity and mortality should visit the PAHO website at www.paho.org. A publication called “Health in the Americas: 2007” is a comprehensive two-volume compendium of information for the entire hemisphere, providing health indicators on the regional and country levels. (See Table 1 for some of the changes in health status in the Americas.)

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<td>Life expectancy at birth (years)</td>
<td>68.8</td>
<td>71.1</td>
<td>74.9</td>
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<td>Total fertility rate (children/woman)</td>
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<td>Infant mortality (per 1,000 live births)</td>
<td>37.8</td>
<td>22.5</td>
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<td>Urban population (%)</td>
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<td>72.8</td>
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<td>109</td>
<td>62.8</td>
<td>55.9</td>
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<tr>
<td>Mortality from diseases of the circulatory system (raw/100,000 inhabitants)</td>
<td>280</td>
<td>256.2</td>
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<td>Literacy rate (%)</td>
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<td>Immunization coverage (%): Measles</td>
<td>48</td>
<td>82.5</td>
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<td>80</td>
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<td>Access to sanitation services (%)</td>
<td>59</td>
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<tr>
<td>Nurses per 10,000 inhabitants</td>
<td>23.1</td>
<td>37.9</td>
<td>30</td>
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Sources:

As mentioned above, the specific characteristics of each health system depend on the history and political and socioeconomic conditions of each country, the influence that is exerted by different interest groups, and the interplay of political forces. The history of the creation and development of health systems in the Americas is closely bound to the development of social security schemes in the context of paternalistic governments that formed in the West at the beginning of the 20th century and which reached their height during the period immediately following World War II. The institutional frameworks and structures of social welfare systems vary widely with regard to relations between the government, the market, society, and the family.8

The Region of the Americas offers a broad array of sub regional, national and local health system themes with countless common trends, achievements, and challenges. For example, health system trends include: 1) the changing role of government in health care from sole provider to regulator and/or coordinator, 2) the asymmetrical expansion of private health insurance, 3) the privatization of social security institutions (affecting pensions and other forms of social security) and health services, and 4) the expansion of public/private partnerships. Health sector reforms in the second half of the 20th century have involved the decentralization and devolution of health care services, which unfortunately, have not always lead to improved access to care or to greater equity of services and health status, or to local participation in health care decisions.

> "It is estimated that between 25% and 30% of the total population of the Region has no access to health care, despite the fact that universal declarations signed by most countries and the national laws of many more guarantee universal access to such care. Health reform processes have made uneven progress on this issue. In many cases, a significant gap exists between the state of development of national social protection systems and the legal framework that supports them." Mirta Roses, 2005

Reforming health systems to increase primary care will enhance ongoing efforts to provide comprehensive care centered on promotion, prevention, and rehabilitation, actively involving patients, their families, and their communities.

The critical role of human resources for health figures prominently on the regional agenda, and unless these resources are competent, equitably distributed, and fairly compensated, health system goals will be unattainable. Optometry, while recognized by the World Health Organization as a profession,9 historically has not been included in planning for health systems. The priority of human resources in regional health systems is one of the reasons why understanding the dynamics of the optometric profession around the world is so important for the optometric student.
Ocular and Visual Health Epidemiology in the Americas

“In Latin America and the Caribbean, two-thirds of the incidence of eye disease—namely, blindness and visual impairment—can be attributed to treatable conditions such as cataracts, refractive errors, diabetic retinopathy, and glaucoma. According to national assessments, however, huge discrepancies exist in eye care service coverage—from close to 80% in well-developed urban areas to less than 10% in rural and remote areas—as well as in the quality of services provided. Prevention of eye disease has the potential to produce major savings for national economies; conversely, if large-scale preventive measures fail to be taken, the cost of eye disease is expected to more than double by 2020, to approximately US$ 10 billion.” Pg 60 Health in the Americas 2007.

Vision Impairment and Blindness.

In the Americas, few published studies document the prevalence of eye conditions. At the start of the VISION 2020: The Right to Sight campaign, the World Health Organization initially estimated that for every million persons in Latin American and Caribbean countries, 5,000 were blind and 20,000 were visually impaired. With the advent of national surveys and large population-based studies, epidemiologists are finding these numbers to be low. At least two-thirds of these cases of visual impairment are attributable to treatable conditions such as cataracts, refractive errors, diabetic retinopathy, and glaucoma. About 85% of blindness occurs in adults 50 years old and older.\(^{10,11}\)

Limburg, et al\(^{12}\) published a review of blindness and visual impairment surveys in Latin America in 2008 and reported that prevalence of bilateral blindness ranged from 1.3% in urban Buenos Aires, Argentina, to 4.0% in two rural districts of Peru; low vision (20/200-20/400 in the best corrected eye) ranged from 5.9% in Buenos Aires to 12.5% in rural Guatemala. Cataract is the main cause of blindness, followed by posterior segment disease. The Barbados Eye Study found a prevalence of 42% with lens opacities, 7% with open angle glaucoma, and less than 1% with age-related macular degeneration among 40–84-year-olds.\(^{13}\) Prevalence of open-angle glaucoma varied among different ethnic groups, from 0.8% in whites, to 3.3% in mixed-race persons and 7% in blacks.

CATARACTS

The proportion of blindness due to cataracts in people aged 50 years old and older varied from 39% in the urban areas of Brazil and Argentina\(^{14}\) (284) to about 65% in the rural areas of Guatemala and Peru\(^{15}\).
DIABETIC RETINOPATHY

Diabetic retinopathy in Latin America is one of the main causes of blindness after cataracts and glaucoma. A diabetes and blindness survey in the Dominican Republic found that 5% of blindness was due to diabetic retinopathy.\footnote{16}

UNCORRECTED REFRACTIVE ERRORS

Uncorrected refractive errors are the most common cause of bilateral visual impairment across all decades of life. In the Caribbean population 40–84 years old, myopia occurs in 22% and hyperopia in 47%. A study conducted in Santiago, Chile, among 6,998 schoolchildren found that more than 7% could benefit from proper spectacles, but 70% of that group had not had their vision corrected at the time of the eye exam. An evaluation of a humanitarian mission in San Blas, Mexico\footnote{20} found that 60% of those for whom the entering distance VA was >20/200 could be improved with spectacles. Almost 50% had entering near VA of >20/70 and 93% were correctable with spectacles.

ONCHOCERCIASIS

In Latin America, Onchocerciasis is regionally clustered in 13 foci in Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela.\footnote{21}

VITAMIN A DEFICIENCY

Vitamin A deficiency in Latin America and the Caribbean is usually subclinical. In the 1980s, it was reported as a public health problem in Bolivia, Haiti, Honduras, and Nicaragua.\footnote{22} Interventions to eliminate vitamin A deficiency are linked to nutrition, immunization, and primary health care systems.

TRACHOMA

Trachoma is no longer a major cause of blindness in Latin America. Some foci have been identified in Brazil, Guatemala, and Mexico.\footnote{23}

CHILDHOOD BLINDNESS

The estimated prevalence of childhood blindness in Latin America is 4 to 6 per 10,000 children; between 34% and 44% of cases of childhood blindness are preventable or treatable.
The most common preventable causes are rubella, toxoplasmosis, and ophthalmia neonatorum, while the most common treatable diseases are congenital cataracts, congenital glaucoma, and retinopathy of prematurity (ROP). Various studies revealed that ROP is the most common etiology in the region, especially in countries that have introduced neonatal intensive care services for low birth weight infants. It is important to note that even with early high quality treatment, these conditions often result in visual impairment for life.

The public health issues surrounding the epidemiology of blindness and vision loss have a direct impact on the profession of optometry in the region. The accurate estimation of the prevalence of a condition, the causes of the condition and the treatment of the condition requires public health surveillance to determine how many eye care providers are needed. The number and location of eye care providers and the accessibility to eye care also impacts the prevalence of blindness and vision loss. This is why it is so important to understand the role that our profession plays in public health, and in global health. The structural determinants of visual health and public health are also rooted in the development of the eye care professions, hence the reason for studying the definition, scope of practice, legislation and regulation, education and distribution of the professionals, covered next.

**History of the Development of Optometry in the Americas**

In 1992, the International Optometry and Optics League, now the World Council of Optometry (WCO), conducted a Think Tank to define the global concept of the optometric profession. While this definition is different from that in the United States of America, it is widely accepted as the standard definition of the profession around the world.

"Optometry is a healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/diagnosis and management of disease in the eye, and the rehabilitation of conditions of the visual system."

The issue of how optometry is defined in the various countries in the Americas will be covered in more detail in the next few sections on the “history of the development of optometry” and “the legal status of optometry in the Americas.”
A Brief History of Optometry in the United States and Canada

In the United States during the 19th century, spectacle-makers who came from Europe began to distinguish themselves as 'dispensing opticians' and 'refracting opticians.' Guild systems of apprenticeships served to train spectacle makers. With respect to the evaluation of eye conditions, those early eye care practitioners who evaluated 'patients' who were not formally trained in ophthalmology generally called themselves 'oculists'. The refracting opticians eventually evolved into what is now known as 'optometrists'. The first U.S. 'training' school was started in 1892, and the first University-based school opened in 1910. The first national professional association started in 1897. In 1896 the first battle to pass an optometry law was fathered by Charles Prentice in New York; however, the first state license law was passed in Minnesota in 1901. By 1924 all states had some form of basic optometry law. The first formal code of ethics for the profession developed around 1935. Expanding the scope of practice into the use of pharmaceutical agents began with the first law allowing the use of diagnostic pharmaceutical agents in 1970 in Rhode Island, and the first therapeutic pharmaceutical agents in 1976 in West Virginia. The first oral and injectable pharmaceutical agent therapeutic law was passed in North Carolina in 1977.

The development of optometry in Canada followed a nearly parallel path with optometry in the United States. In fact, in the early years prior to the late 1800's optometry in the two countries was notably identical and some of the same people were instrumental in laying the basis of the profession for each country. The first Canadian Provincial Optometry Acts were passed in Ontario and Manitoba on March 9th and 10th respectively in 1909. By 1925 all the Provinces had passed their optometry acts. The creation of a national optometry association in Canada started as early as 1896 with a series of organizational attempts often interrupted by wars, depressions and regional disagreements, but finally formed a unified voice for optometry in Canada in 1948, the Canadian Association of Optometrists (CAO).

The first optometry school in Canada traces its roots back to 1904 in Québec, called the College d’Optique which became affiliated with the University of Montréal in 1925, where l’École d’Optométrie continues today. Canada’s second, and only other, optometry school became affiliated with the University of Waterloo, in Ontario, in 1967. Today, many students cross the border to attend optometry schools.

Expansion of the scope of practice of optometry in Canada has shadowed that of the United States and varies from province to province with the
introduction of the use of diagnostic pharmaceutical agents in 1987 in Ontario. Today many provinces have therapeutic privileges as well.

**Background of the History of Latin American Optometry**

Not unlike the development of optometry from state-to-state in the United States of America, Latin America’s evolution of optometry has followed a similar direction but has varied in pace, scope and degree from country-to-country. It is not uncommon today in Spanish speaking countries to hear the public still refer to an eye care provider as an ‘oculista’ just as the oculists existed in the USA in the 19th century. This signifies that the public is generally not fully aware of the distinction between an ophthalmologist, optometrist, or optician.

Ophthalmologists consider themselves the only eye care providers in most of the Americas and many provide primary and secondary eye care as well as tertiary services. They generally complete residencies in ophthalmology after medical school, although some physicians practice ophthalmology without formal advanced training. Debate exists about the role of a general ophthalmologist, and the increasing specialization into areas of expertise within ophthalmology.

Branches of opticianry, such as the laboratory fabrication of eye wear and the dispensing of eye wear have been firmly established, yet opticianry is not a profession with formal training in many countries. In countries where optometry is not a legalized profession (such as Chile, Paraguay and previously Argentina) people who are trained as optometrists outside the country often practice as dispensing opticians.

The blur between the professional distinctions of opticians and optometrists begins here. The term ‘optometrist’ translates to ‘optometrista, optómetra, or optometrito’ and the title is used loosely, because it can label anyone who received an apprenticeship in refraction, either formally or informally, or a two-week course, or a five-year undergraduate program, or a graduate program. Despite the recognized epidemiologic need for primary eye and vision care in the Americas, the development of the profession of optometry as a recognized stand-alone health care profession for the provision of primary eye care, however, is still ongoing.

In some countries, the political power of the medical profession limits the advancement of the optometric profession. As a result of the variance in influence of the medical profession and in conjunction with the limitations in training optometrists to the highest standard of competency in the region, education, legislation and regulation of the profession is varied. For example, in Chile, the profession of optometry does not technically exist and it is against the law to practice optometry. Ophthalmologists provide all eye care, while opticians
fill the written spectacle and contact lens prescriptions. In Argentina, the medical code specifically states that only medical physicians can write prescriptions, thus limiting optometrists to optician duties. In this country, the profession of ‘Contactologist’ emerged, to fill the need for skilled contact lens fitters. Medical technologists in optometry exist in many countries including Brazil and Uruguay. This professional works under the supervision of an ophthalmologist, as a paramedical assistant.

In other countries, optometrists are autonomous and can practice without supervision—examples include Colombia, Ecuador, Costa Rica, El Salvador, Panama, and Guatemala, and many Caribbean nations.

**Legal Status of Optometry in the Americas**

In the United States and Canada, the profession of optometry is carefully legislated and regulated. There are standards describing and accrediting programs of optometric education and national examinations which certify the minimum competency of the practitioner. There are legislated state and provincial rules and regulations of the practice, and independent boards of optometry within the health system which grant licensure for the privilege to practice optometry, and these rules and regulations are strictly enforced. Moving south of the U.S. border the scenario is very different.

By contrast, in Mexico, where the oldest and largest optometry school in Latin America opened in 1950, there is still no national optometry law regulating the profession as of 2009. Mexico is a large country, and there are many factors affecting optometry’s legalization. First of all, ophthalmology is very well organized, and frequently intervenes in legislative processes involving the development of an optometry law. Secondly, there are many large national optical chains, which, when the need for optometrists arises, open schools of optometry and train refractionists to fill employment vacancies, then close them again until the need for more trainees increases sufficiently. These programs are generally not recognized by the government authority on tertiary education, and follow no standards of higher education. Optical shops train people to refract on the job, resembling the apprenticeships of more than a century ago in the US.

The flawed consideration of refraction as a non-health related service related to the sale of eyewear, lead to the practice of not charging a professional fee for the vision evaluation. This also occurred in the early days of US optometry. There is no recourse or professional liability for poor quality of refracting within Mexico. Without a quality assurance mechanism as oversight for the profession to protect the public from poor services, a vicious cycle resumes.
The university-based optometry schools of Latin America graduate too few optometrists to meet the demand, and as a result, if an optical company wants to hire an ‘optometrist’, and there is no distinction between university-trained and empirically-trained optometrists, they are paid the same. The public does not understand that a difference in the skills of the refractionists/optometrists working in optical shops. If the quality of care is poor, and an ophthalmologist has to take care of a mismanaged case, the ophthalmologists declare that ‘all’ optometrists are inadequate health care providers, and the conflict surrounding professional recognition starts again.

What may also worsen the fight to advance the professional recognition (in Mexico or any developing country) is when well-meaning foreign optometric humanitarian eye care missions go to attend to the underserved or poorest people on a short-term one time only mission trip. They may treat people with the best available resources, such as the spectacles and medications they bring with them. If a problem or a complication occurs and there is no follow-up those opposed to optometry can seize the example for propaganda purposes. This can worsen the reputation of optometrists in general, and the political opposition increases. Such scenarios have occurred across the region (see *The Story of Carlos Rojas*).

Even with some of these obstacles in the development of the profession, there are a few countries in the region where the practice is well-defined and well-regulated and the law is strictly enforced. Costa Rica and Colombia are two examples. Costa Rica’s optometry law is clearly defined and strictly enforced, and optometrists must register with the Colegio de Optometría de Costa Rica, which is the licensing board and the professional association for optometry. Costa Rica is a country with high education levels, high literacy rates, socialized medicine and universal coverage through the social security system. The Universidad Latina has been a private university with an optometry school granting a “Licenciatura” in Optometry level degree since 1989, and has trained many recent optometrists across Central America. There are sufficient numbers of optometrists across the country to meet the demand, and optometrists enjoy private practice as well as public service.

When Costa Rica’s economy started shifting from agronomy to industry in the 20th century, eye injuries increased. As a result of good public health surveillance and a strong policy for health equity in the country, eye care and eyewear were some of the first health services provided by the government. Costa Rica was considered to have the best universal coverage of eye and health care services of the region, until the health care reforms of the 1980s. The decentralization of health care and the emerging mix of the privatization of eye care at the end of the last century started causing limitations to access to
advanced care; for example, the wait time for a cataract surgery in the nation’s social security hospitals has increased to six-months in some departments (states).

Colombia is the strongest success story for optometry in South America. Colombia is home to the second oldest optometry school in the Latin American region, and has the broadest scope of practice law of the Latin American region. Many optometrists from other countries receive their education at one of the seven nationally recognized university-based optometry schools in Colombia. Optometric education is standardized and regulated. A national accreditation process for optometry programs maintains the highest standards for professional competency. The most current optometry law is Law 372 passed on May, 28, 1997 requiring optometrists to have a university degree from a government recognized university and to obtain a ‘professional card’ or license. The scope of practice includes the evaluation, diagnosis, prognosis, treatment and rehabilitation of vision problems, along with the design, execution and evaluation of vision policies, projects and programs on the population level. The National Technical Professional Council of Optometry is designated to handle any policies of the development and practice of the profession.

Decree No. 1340, passed on July 14, 1998 allows the use of pharmaceuticals by optometrists in Colombia as any externally applied anesthetics, anti-inflammatory, anti-microbial, antiseptics, corticosteroids, mydriatic or miotic agents, artificial tears and ophthalmic lubricants, vasoconstrictors, antihistamines, anti-virals and decongestants. No other country in Latin America or the Caribbean has a law allowing optometrists to use or prescribe pharmaceuticals of any type.

The next country in South America, after Colombia, to achieve a legal framework for the practice of optometry is Ecuador. In 1994 the passage of Law 65 Article 174 officially recognized the profession of optometry and the title of ‘optometrista’. The professional profile of an optometrist practicing in Ecuador includes the detection and referral of ocular pathologies, and the detection and treatment of visual anomalies. Anyone practicing optometry without a diploma or certificate will be sanctioned by the penal code, and this certificate must be visibly posted at their practice location.

Before this law, the only two eye care professions officially recognized by national law were ophthalmology and opticianry. The parameters of the two professions were clearly defined in Decree 3601 in 1979. This law stated that ophthalmologists couldn’t have economic participation in optical shops (i.e. have ownership or earn financial benefit from an optical shop which might fill a prescription of an ophthalmologist). It was and continues to be a violation of the law for optical shops to have ophthalmoscopes, retinoscopes, trial lens kits,
refracting lanes, autorefractor and Snellen acuity charts on the premises, because it could mean that someone might be refracting without a license to practice. These were measures to clearly define the scope of practice of the two professions, and similar statutes still appear on laws in other countries.

Even without an optometry law prior to 1994, various schools in Ecuador graduated ‘medical technicians in optometry’ or ‘medical technologists in optometry’. Optometrists were trained in other countries such as Colombia. Professionals from Spain using the title ‘óptico-optometristas’ also practice in Ecuador. The trained optometrists organized themselves in 1979 to form the Sociedad Ecuatoriana de la Optometría (SEDOP, or the Ecuadorian Optometry Society, in English). The mission of this organization was and continues to be to harmonize and work toward the professionalization of the practice and education of optometry.

The Ecuador experience reveals the importance of having educated optometrists and having a strong association of trained optometrists to initiate and achieve the process of legalizing and regulating the health professions. The law of 1994 would not have happened if optometrists didn’t speak with a unified voice before the government authorities. Other countries in the Americas which are known to recognize optometry by law are: Jamaica, Trinidad & Tobago, Belize, El Salvador, Guatemala, Honduras, Panama, Nicaragua, Peru, and Uruguay.

Venezuela does not have an optometric practice law at all. Brazil, Chile and Argentina have been struggling to pass legislation and regulation on the national level, and have made some progress in the last 10 years.

The International Labor Organization’s International Standard Classification of Occupation (ILO ISCO) recognizes optometrists, dispensing opticians and ophthalmic opticians. The ILO ISCO defines optometrists or opticians as professionals that examine eyes, prescribe and fit glasses and contact lenses or other treatment to improve vision, refer cases which may require medical treatment to Medical Doctors, and advise on the use of other visual aids, as well as on proper lighting for work or reading.

With these varied definitions of optometry and its related professions, sometimes well separated and sometimes overlapping, it becomes easy to understand how there can be confusion about what defines optometry in the Americas. From one international organization to another and from one country to another, optometry exists or does not, stands alone or shares meaning with other professions.
Optometric Education in Latin America

Optometrists who first came to Central and South America were trained in the United States or Europe, and started arriving in the early 1900s. The first optometry school in Latin America was started in 1950 at the Instituto Politécnico Nacional in Mexico City. The second optometry school in the Latin American region was at the Universidad de La Salle in Bogotá, Colombia which opened in August 1966.

The number of universities outside the U.S. and Canada offering an optometry degree, not including Puerto Rico (U.S. territory), is 35 in Latin America, and one in the Caribbean. While it is notable that the first school in Latin America opened in 1950 in Mexico and the second in Colombia in 1966, many schools of optometry in universities were not established until the 1990’s.

Historically, schools of optometry have opened and closed to meet the demand for services and as a result of political and financial challenges. As described in the previous section on Mexico, some private schools are heavily subsidized by large optical chains needing refractive and dispensing services. Once the required number of persons is trained, the schools then close. Other schools are associated with public or private universities. Still others are private stand-alone institutions.

The Doctor of Optometry degree is only offered in the USA and Canada. Other programs are technical or undergraduate programs, extending from 3-5 years of study. The title ‘Licenciatura’ is a unique description of a degree level granted in Latin America, somewhat between a Bachelor and a Master level degree in North America. The Licenciatura in Optometry is a 5-year degree post secondary school, and is the most common degree granted in Latin America. Some schools are offering Master level specialization training in Optometry beyond the Licenciatura level. In the Caribbean, most optometrists are either trained in the UK or USA. A few are trained in Nigeria and South Africa or Australia, where the O.D. degree is also offered.

The USA and Canada have an Association for the Schools and Colleges of Optometry (ASCO—see www.opted.org). In Colombia, prior to 1994, La Salle was the only optometry education program. Now there are seven Colombian schools that are associated through Asociación Colombiana de Facultades y Programas de Optometría (ASCOFAOP). A regional level association, ALDEFO was formed in 2003 for those programs that offer university level “licenciatura” or higher diplomas (See below Optometric Professional Organizations).
The International Standard Classification of Education (ISCED 1997 of UNESCO) includes Optometry in the Medical Services, section 72, of the broad groups and educational fields. This indicates that optometric education is internationally recognized, but is not yet consistent between countries. In a presentation to the World Congress on Optometric Education in 2006 in Milan, Italy, Professor Ricardo Bahena of Mexico proposed that all Latin American schools of optometry strive to bring all optometric education to the highest level as described by the ISCED level 5 (as is the case in North America). But citing the historical evolution of optometry in North America, he pinpointed the challenges of harmonization and standardization across borders and within the profession in Latin America.

Accreditation and standardization of education programs within the Americas only exists in the USA, Canada, and Colombia. Some Latin American schools are recognized by their national education authorities, such as the Ministry of Health or the Ministry of education, and others are not. In the countries of Argentina, Brazil and Mexico, the optometric curriculum is recognized by the national government, but the practice of optometry is not. A few schools of optometry are public or tuition-free to students (examples include University of the West Indies in Trinidad and Tobago, Universidad de El Salvador, Universidad Nacional de La Plata in Argentina, Universidad Nacional Autónoma de México and the Universidad Autónoma de Aguascalientes in Mexico). Many more schools charge tuition. While optometric education in the USA and Canada is very expensive, there are student loans available to subsidize optometric training. Optometry students in developing countries face similar challenges, but in Latin America, accessing funding for tuition, textbooks, reference books, and clinical equipment is especially difficult. Table 2 shows the optometry school tuition for select countries and relates it as a percentage of the annual gross domestic product per capita.

<table>
<thead>
<tr>
<th>Country</th>
<th>Average tuition cost (in USD)</th>
<th>Mean tuition cost as a % of annual GDP per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecuador</td>
<td>3 or 4 yrs: $1007 USD / 5 yrs: $1048 USD</td>
<td>26.4%</td>
</tr>
<tr>
<td>Peru</td>
<td>$482</td>
<td>8.5%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>$1,200</td>
<td>19.9%</td>
</tr>
<tr>
<td>Colombia</td>
<td>$2,725</td>
<td>45.1%</td>
</tr>
<tr>
<td>Brazil</td>
<td>3 yrs: $3,454 USD / 4 yrs: $3,304</td>
<td>42.2%</td>
</tr>
<tr>
<td>Argentina</td>
<td>no cost</td>
<td>0%</td>
</tr>
<tr>
<td>USA</td>
<td>$22,000</td>
<td>52.5%</td>
</tr>
</tbody>
</table>

Table 2: Estimated average cost for optometry tuition by country in 2008 (in USD)
Without standardization, accreditation, and regulation, optometry curricula vary in the length of the course of study, the degree granted, and the qualifications and competencies of the graduates. Schools face challenges in infrastructure such as adequate facilities, laboratories, clinics, faculty, libraries, equipment and books. The educational process typically drives the legislative and regulatory process of a profession and the same can be said for the optometric profession in the Americas. In Latin America, there have been many successes in optometric education, but there are many areas where improvement is still needed.

Optometric Professional Organizations

Interestingly, Latin Americans still use the term ‘guild’ or ‘gremio’ in Spanish to describe the groups of professionals that associate together to work toward the common goals of the profession. Similar to the situation in the United States, associations or professional organizations formed across the regions at differing times in history. Some are nationally registered, with strong memberships and lots of activity, and others have dwindled in strength and action throughout the history of optometry in the twentieth century. Some serve as the national governing body for the practice optometry (such as a state board in the U.S.) and the professional association, and others simply represent the optometric professionals. Since the lines delineating the practice of optometry and opticianry are often blurred in some countries, these professional organizations may serve both optometry and opticianry.

At the regional level, several optometric professional organizations exist.

- ALDOO (Asociación Latinoamericana de Optometría y Óptica) was founded in 1978 with members of the country level associations of optometry in Latin American countries. It is the regional governing body of the World Council of Optometry (WCO) for Latin America and appoints three members to the Governing Board of the WCO. A president is elected at a general assembly of the membership every two years. This meeting has grown to become a Congress which includes optometric continuing education. Central America, and South America hold their regional optometric congresses in association with ALDOO. ALDOO works to improve access to vision care around the region, through public health efforts and legislation and regulation efforts. (www.aldoo.org)
ALDEFO (Asociación Latinoamericana de Programas y Facultades de Optometría) was founded on November 5, 2003 by a group of deans and presidents, faculty members of university level optometry programs and professional organizations from Spain, USA and Latin America at an ALDOO Congress in Costa Rica (see photo). ALDEFO represents optometric educational programs which are legally recognized in their countries and works to improve the quality of optometric education in the region through academic and scientific exchange, standards of academic competencies, curriculum development, prevention and promotion of visual health and scientific research in the area of optometry.

Figure 1: ALDEFO Founding Deans November 2003. Seated Left to Right: Pilar Contreras (Universidad Autónoma de Aguascalientes, Mexico), Margarita Ayala (Universidad Santo Tomás, Colombia), Jairo Touchie (Universidad de La Salle, Colombia), Julio Torres (Instituto Politécnico Nacional, Mexico), Jorge Cheruse (Universidad Nacional de La Plata, Argentina). Standing Left to Right: All from the USA, David Heath (New England College of Optometry, David Loshin (Nova Southeastern University), Randolph Brooks (American Optometric Association), Edwin Marshall (Indiana University), Alden Norman Haffner (State University of New York), Hector Santiago (Inter-American University).
CARIOA (Caribbean Optometric Association) is the regional organization of optometrists dedicated to the enhancement and development of eye and vision care in the Caribbean. [See Figure 2]

![Figure 2: Left-right: Optometrists Romanus Thomas, St. Lucia, Keith Mondesir, optometrist of the year 2008, Minister of Health St. Lucia Frank Munro, chairman of Optometry Scotland, Nigel St. Rose, CARIOA president, Trinidad, Jones Efiememokwu, Trinidad, Jillia Bird, Antigua and David Kirton, Barbados. (Photo taken without permission from the Antigua Sun newspaper courtesy of Jillia Bird)](image)

- IACLE (International Association of Contact Lens Educators) has a strong regional presence in Latin America (www.iacle.org)
  See Appendix A for a full list of optometric professional organizations in the Americas.

**Number and Distribution of Optometrists in the Americas**

Few studies are published which describe the number and distribution of optometrists in the America (See the case study *How much eye care is enough in Jamaica?*). According to the UNESCO Chair in Visual Health and Development’s Study of Visual Care Systems around the World (*Sistema de Atención Visual Mundial*, or SAVIM)\(^40\text{,}^41\), there are not enough eye care providers, including optometrists, ophthalmologists, and others to serve the population in Central and South America. As depicted in Graph 1 the number of providers per 100,000 population is quite limited, and in most cases, less than 5 per 100,000.
The UNESCO Chair reports that most of the eye care providers are located in the capital cities or the most populous cities in the country, thereby leaving the rural areas without services. The distribution of ophthalmologists and optical shops does not match the distribution of the population when studying rural vs. urban eye care coverage. Tables 3 and 4 show the proportion of ophthalmologists, and optical establishments, respectively that are located in the principal city of region as compared to the proportion of the population living in that region.

<table>
<thead>
<tr>
<th>Country</th>
<th>Bolivia</th>
<th>Paraguay</th>
<th>Ecuador</th>
<th>Peru</th>
<th>Venezuela</th>
<th>Colombia</th>
<th>Brazil</th>
<th>Uruguay</th>
<th>Chile</th>
<th>Argentina</th>
</tr>
</thead>
<tbody>
<tr>
<td>% ophthalmologists working in the principal region</td>
<td>35%</td>
<td>96%</td>
<td>51%</td>
<td>*65%</td>
<td>49%</td>
<td>42%</td>
<td>32%</td>
<td>57%</td>
<td>63%</td>
<td>59%</td>
</tr>
<tr>
<td>% population living in the principal region</td>
<td>29%</td>
<td>35%</td>
<td>17%</td>
<td>34%</td>
<td>19%</td>
<td>16%</td>
<td>22%</td>
<td>39%</td>
<td>40%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Table 3: Estimated proportion of ophthalmologists located in the region with the capital city of the country in 2008. *Source: UNESCO Chair in Visual Health and Development*41,42. Bolivia is an estimation based on the source.
In Table 5, the average fees for an ophthalmologic consult (exam) and the average fee for cataract surgery and are compared with the average monthly income for the country. For example, in Nicaragua, the price of an ophthalmologist’s eye exam costs about 50% of the average monthly income for a person. For someone in Brazil, the fee can cost about 86% of their salary. As discussed above in the section on epidemiology, with cataract being the primary cause of avoidable blindness in the region, the cost of cataract surgery, if not available in the public sector, can cost from 3-17 months’ salary. In countries where optometrists work within corporate optical chains, service fees are not collected. The refraction fee is included in the spectacle fee. Thus, direct comparisons between ophthalmologists and optometrists are not possible regarding cost of service.

In Table 6, the average price for a pair of eyeglasses in each country is compared with the average monthly salary. In absolute terms, the least expensive pair of basic frames and lenses is found in Argentina, whereas the most expensive is found in neighboring Uruguay and Paraguay. When compared to the average monthly salary, a pair of eyeglasses costs over 50% of the monthly salary in Bolivia, Paraguay, Uruguay and Nicaragua. These statistics are important to demonstrate to governments the lack of accessibility to affordable eye care as a result of the decentralization of health care in the vision care sector and the lack of insurance to cover such needs.

Table 4: Proportion of optical shops located in the principal region of the country in 2008.
Source: UNESCO Chair in Visual Health and Development\(^{41,42}\). Bolivia is an estimation based on the source

<table>
<thead>
<tr>
<th>Country</th>
<th>Bolivia</th>
<th>Paraguay</th>
<th>Ecuador</th>
<th>Peru</th>
<th>Venezuela</th>
<th>Colombia</th>
<th>Brazil (Sao Paulo)</th>
<th>Uruguay</th>
<th>Nicaragua</th>
<th>El Salvador</th>
</tr>
</thead>
<tbody>
<tr>
<td>% opticals in the principal city</td>
<td>50% - 62%</td>
<td>78%</td>
<td>42%</td>
<td>20%</td>
<td>50%</td>
<td>33%</td>
<td>57%</td>
<td>78%</td>
<td>62.5%</td>
<td>80%</td>
</tr>
<tr>
<td>% population living in the principal region</td>
<td>29%</td>
<td>35%</td>
<td>50%</td>
<td>34%</td>
<td>19%</td>
<td>16% (05)</td>
<td>22% (Sao Paulo)</td>
<td>39%</td>
<td>..</td>
<td>..</td>
</tr>
</tbody>
</table>

Table 5 (next page): Private clinic fees for an ophthalmologic consult and cataract surgery in relation to the GDP per capita in 2008 (an estimation of the average monthly salary) Created with permission from the UNESCO Chair in Visual Health and Development SAVIM studies in South and Central America (21,22). Fees are based on surveys conducted in fieldwork, and the GDP and poverty levels are found in the Human Development Report 2006 for South America and the Human Development Report 2003 for Central America for the percentage of persons living below the poverty line 2003.
<table>
<thead>
<tr>
<th>Country</th>
<th>Bolivia</th>
<th>Paraguay</th>
<th>Ecuador</th>
<th>Peru</th>
<th>Venezuela</th>
<th>Colombia</th>
<th>Brazil</th>
<th>El Salvador</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. Fee Basic Ophthal. Exam Fee in Private Clinic (USD)</td>
<td>$17.2</td>
<td>$17</td>
<td>$23</td>
<td>$33.4</td>
<td>$48.3</td>
<td>$25.4</td>
<td>$185.2</td>
<td>$15</td>
</tr>
<tr>
<td>Ophthalmologic consult fee as a % of min. monthly salary</td>
<td>24.7%</td>
<td>5.9%</td>
<td>11.6%</td>
<td>18.0%</td>
<td>16.9%</td>
<td>10.7%</td>
<td>85.8%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Approx. fee Cataract Surgery with IOL in a private clinic (USD)</td>
<td>$695</td>
<td>$1,200</td>
<td>$1,000</td>
<td>$938</td>
<td>$1,135</td>
<td>$582</td>
<td>$1,278</td>
<td>$500</td>
</tr>
<tr>
<td>Cataract surgery fee as a % of the monthly salary</td>
<td>999.9%</td>
<td>419.6%</td>
<td>504.3%</td>
<td>503.8%</td>
<td>396.3%</td>
<td>244.4%</td>
<td>591.8%</td>
<td>280%</td>
</tr>
<tr>
<td>Population with less than $2 per day (%) 1990-2004</td>
<td>42%</td>
<td>33%</td>
<td>37%</td>
<td>32%</td>
<td>28%</td>
<td>18%</td>
<td>21%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Approx. Fee Basic Ophthal. Exam Fee in Private Clinic (USD)</td>
<td></td>
<td></td>
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<tr>
<td>Ophthalmologic consult fee as a % of min. monthly salary</td>
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<tr>
<td>Cataract surgery fee as a % of the monthly salary</td>
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<td></td>
<td></td>
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<tr>
<td>Population with less than $2 per day (%) 1990-2004</td>
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<td></td>
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</tr>
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</table>
### Table 6: Average price of a pair of eyeglasses in relation to the monthly salary in 2008

Source: UNESCO Chair in Visual Health and Development SAVIM study. Fees are based on surveys conducted in fieldwork, and the GDP per capita divided into monthly amounts are found in the Human Development Report 2006 for South America and the Human Development Report 2003 for Central America.

#### Conclusion

Optometry in the Americas varies by definition, scope of practice, licensure, education, and diploma or degree. From the USA and Canada where optometry is advanced and equivalent to a medical model of practice, to Bolivia where the profession is just budding, there is much to learn from the study of the evolution of the profession. Harmonization of the professional profile and definition of an optometrist and the scope of practice of optometry follows the particular situation in each country. Action and involvement in the development of the profession will dictate its future, driven by the public health supply and demand for eye care on the primary and secondary levels. Studying the historical perspective of the profession and understanding the experiences of different countries allows one to learn from each other, and propose new paradigms for the harmonization and
establishment of an important human resource in the fight against blindness, and in the quest for visual health.

CASE STUDIES

Argentina

**The Story of Carlos Rojas**

**July 11, 2006 Quilmes, Argentina.** Imagine you always dreamed of being an optometrist, went to optometry school and were a really good student, graduated with high honors, then found out that it was illegal to practice your chosen profession? Such is the true story of optometrist Carlos Rojas, an optometrist and city councilman in the city of Quilmes, in the province of Buenos Aires, in the country of Argentina.

Imagine a man standing before an administrative judicial tribunal, hoping to be the first optometrist officially registered in Argentina after years of attempting to practice his chosen profession. What might have been his story of getting there? It took a legal battle of ten long hard years. He was taken to jail. On what grounds? Practicing medicine without a license? He was a graduate of a recognized optometry school. He is not alone. Others in Argentina who have graduated with diplomas in optometry and optics together faced the same struggle.

In Argentina, optometry is considered a technical career, not a medical profession. According to the definition that ultimately was judicially recognized, optometrists can ‘detect, diagnose and follow problems of the visual system through prescription of optical corrections, mainly eyeglasses and contact lenses’. Traditionally, they refer persons who are suspect of having ocular pathology to ophthalmologists for treatment.

The medical laws of Argentina dictate that only medical physicians can diagnose and treat medical conditions. This is where the battle between optometry and ophthalmology begins. Medical doctors, and the subspecialty of ophthalmology, have historically been the only health providers that can legally write a prescription, and this privilege extends to prescribing optical devices such as eyeglasses, contact lenses and other ophthalmic devices. An optician may fill the prescription, which could include adapting or fitting contact lenses to the patient. But under no circumstances is it legally allowable for a non-medical doctor to prescribe and treat.
Ophthalmologists claim that there is adequate coverage of ophthalmologists for the population. Optometrists have argued that their training in optics and refraction qualify them to be able to prescribe spectacles and evaluate the visual system. Optometrists argue that they are trained to be the frontline in primary eye care, often being the access point to visual health services for the public. Optometrists argue that that in some marginalized populations, ophthalmology is inaccessible, but optometry can reach these populations for primary eye care. Within the category of opticians and optometrists, a discussion of appropriate qualifications and practice scope arose, and they argued. Several professional associations were founded, based on these differences. Each fought for its own version of the concept of optometry and its legalization, and tried different political approaches. They ended up not only fighting against the ophthalmologists, but they fought against each other as well. The fight got so ugly that attempts to unify the different groups and develop a solid definition of the scope of practice failed.

An alternative approach to legalizing optometry in Argentina was to officially recognize optometric education and validate the diplomas granted by the schools that were legally authorized to grant the degree. This is the point which held ground in 2006 in the Province of Buenos Aires. In a court of law, a judge recognized that an optometry degree from the CEPEC Institute is legitimate, and that incumbents or students graduating from this school should be allowed to practice their profession. Carlos Rojas was the first to go before the judge to register as an optometrist in 2006 and have his title validated. Only in the Province of Buenos Aires is there legal precedent to practice optometry. As of 2009, there is no national law defining and regulating the practice of optometry. Depending on the political climate of the country, either in the legislative or judicial aspects, this legal status is subject to change.

Discussion Questions:
1. What factors might have caused the ophthalmologists in Argentina to oppose the legal recognition of the practice of optometry? Why?
2. What impact do legislation, legalization and regulation of the health professions have on the provision of quality vision care for the citizens of this country?
3. How does the current situation in Argentina compare with the history of optometry in the United States? What is similar and what is different?
4. What role do health policy and the evolution of the health professions have on the status of health in a country? What would you do if you wanted to practice optometry in Argentina?
Tras una batalla legal de diez años
El quilmeño Carlos Rojas es el primer optometrista matriculado oficialmente del país

El estudio lleva cinco años en la universidad, pero una rivalidad con los oftalmólogos les trajo los títulos en la Justicia durante diez años. Por fin, el fallo definitorio quedó firme y los optómetas podrán ejercer con libertad.

El quilmeño Carlos Rojas se convirtió en el primer optometrista reconocido oficialmente de la República Argentina, al quedar firme un fallo de la Justicia Constitucional Administrativa, tras una batalla legal de odiados años.

La optometría es una carrera técnica, no médica, que tiene como incumbencia la detección, diagnóstico y seguimiento de problemas visuales que no tienen que ver con la salud visual, mediante la prescripción de medios ópticos correctores, como anteojos y lentes de contacto.

«Nuestra misión es prevenir enfermedades, no curarlas, con anteojos específicos y correctores, y no podemos matricular personas para hacerlo sin solucionar estos problemas», explicó el optometrista Rojas.

«Nuestra misión es prevenir enfermedades, no curarlas, con anteojos específicos y correctores, y no podemos matricular personas para hacerlo sin solucionar estos problemas», explicó el optometrista Rojas.

CARRERA EN PROYECCIÓN
La proyección del futuro halla en los países de habla hispánica, donde la carrera de optometría es una de las más demandadas. Hoy en día, el futuro del país es la optometría, que es una carrera que se está convirtiendo en una de las más demandadas en el país.

Carlos Rojas, el primer optometrista oficial del país

Figure 3: Newspaper announcement of Carlos Rojas becoming the first officially registered optometrist in the country of Argentina
Jamaica

**How much eye care is enough for Jamaica?**

A study reported by Buchanan and Horowitz in 2000 describes the utilization of eye care services, and the distribution of eye care providers in the island nation of Jamaica.

They report that with a population of approximately 2.5 million people, there are 18 registered optometrists and 33 registered ophthalmologists for a total of 2.04/100,000 population. Unfortunately, these professionals are not distributed among the population. For example, the metropolitan areas of Kingston, St. Andrew and Montego Bay comprise 27% of the total population, yet 78.4% of the eye care providers including 80% of the ophthalmologists practice there.

Interestingly, general medical practitioners, who receive 10-20 hours in eye care training, are allowed to practice unrestricted eye care. Indeed, in a public survey of reported eye care, 8.5% reported having received an eye examination from a general practitioner. Approximately 52% reported having comprehensive preventive eye exams. Of those who could identify their eye care provider, 34% were seen by an optometrist, and 52% were seen by an ophthalmologist. Only 13.2% knew the difference between an ophthalmologist and an optometrist.

Regarding the frequency of reported eye exams, 43.4% reported never having received an eye exam while 23% reported having an exam within the last year. The reported age of the first eye exam was, 4.3% by age 10, and 23% by age 20. Approximately 56.4% reported having some sort of vision or eye problem.

Practicing optometrists in Jamaica were either trained in Great Britain (40%), Canada (10%) or the United States (50%). British trained optometrists currently receive a Bachelor’s degree in optometry, followed by 18 months of internship and special exams, leading to a Diploma in Optometry.

The practice of optometry in Jamaica is regulated by the Opticians Act of 1926. According to the law, any optometrist caught utilizing DPA or TPA is subject to up to 6 months in jail. With cataracts, glaucoma, sickle cell disease and hypertension being common, a dilated eye health exam is an important preventive measure. Most optometrists believe that changes are needed to the current eye care policy to allow optometrists to practice to the fullest ability.
The mean cost of an eye exam runs on average US $18-30. Among persons seeking vision care, 20.4% consider cost a barrier to accessing care, whereas among persons not seeking care, 51.7% considered cost an issue. Among both groups, distance limitations were considered a barrier in roughly 4% of those surveyed.

**Discussion Questions:**
1. Are there enough eye care providers in Jamaica? Why or why not? List the reasons to support your answer. What solutions could you offer?
2. What can be said about how much the public knows about eye care? What could be done to improve this situation?
3. What changes do you propose in the health system and policies to improve the eye care in Jamaica according to the facts presented here?

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**Guatemala**

*How Rolando Became an Optometrist in Guatemala*

Dr. Rolando Cabrera is an optometrist in Guatemala City, Guatemala. He graduated from optometry school in 2004, but his career in the eye care field started long before that. His career since graduation is a great example of public health optometry being practiced in its purest form.
Before Rolando became Dr. Cabrera he ran an optical shop in the country’s capital, Guatemala City. To increase his business as an optician he employed an ophthalmologist to work in his office a few days a week examining patients. This not only enhanced his sale of eyeglasses and contact lenses, but over time it perked his interest in becoming an optometrist and being able to examine patients himself.

In Guatemala optometry is not tightly regulated and many opticians and optometrists practice without specialized training. As an optician, Rolando could refract patients and then prescribe glasses for them, but he wanted to offer more ‘state of the art’ care to his patients. He recognized the importance of monitoring his patients’ ocular health. That’s why he hired the ophthalmologist. This became a stop-gap measure until he could be university trained as an optometrist and do high quality vision and eye health exams on his own.

After he began studying optometry he continued to run his optical business. Rolando also worked as an intern at an ophthalmology clinic, called Visualiza, to compliment and enhance what he was learning in optometry school. His graduation in 2004 empowered him to practice independently of the ophthalmologist, but he continued working part time at Visualiza. Visualiza has a large social service component to the mission of their practice and Dr. Cabrera felt a duty to help with the poor of his country both in the clinic and in frequently held rural outreach clinics. He continues to help Visualiza with their outreach program.

In 2008 he volunteered his expertise to help out a U.S.-based non-profit organization, called Enfoque Ixcán, doing primary eye care in a remote jungle region of northwest Ixcán, Guatemala. There he serves indigenous Guatemalans whose nearest access to professional eye care is 3 to 6 hours away and is care they cannot afford. This association between Dr. Cabrera as the local partner, and Enfoque Ixcán, as the foreign partner is a promising start to a future that could lead to the establishment of permanent quality eye care for underserved people in this region of Guatemala.

When asked why he takes so much time out of his office to volunteer his professional services, Dr. Cabrera simply says, “There are many poor and uneducated people in my country. I have been fortunate that I have an education and that is my gift. That means giving back for this gift, to let the less fortunate know someone cares about them, to lift them up and to show my own children about the responsibility we have to help our people.” Dr. Cabrera is a shining example of public health optometry and social responsibility.
Discussion Questions:
1. Do an internet search for ‘Visualiza’. What do you find? How did this clinic start and what is their purpose? What model was used for this group of dedicated private practitioners to create a social service enterprise to provide eye care for the poor in a developing country? Could the same be done in your country? How can we evaluate its effectiveness?
2. Dr. Cabrera is dedicated to helping the poor and underserved in his country, and works with non-governmental organizations from other countries as well as his own. Which professional ethical principles of social responsibility is he upholding?
3. Prior to obtaining his degree in optometry, Rolando was considered a refracting optician, but he realized he was unlicensed, unregulated and untrained, and needed to get further education to provide quality eye care to his clients. What is the role of professional education in public health and in eye care?
4. Dr. Cabrera is just like many eye care providers, with an office in the urban metropolitan area of the capital of the country. But Dr. Cabrera is different, because he reaches out and serves people in rural and remote areas of his country, too. What public health measures are needed to increase the number of providers practicing in the rural and remote areas of developing countries?

Cuba

Is Cuba’s ‘Misión Milagro’ really a miracle?

A project which has had some impact on optometry and eye care in Latin America and the Caribbean in the last few years is a project from Cuba called Misión Milagro, or Miracle Mission. Cuba, while lacking in many areas, is aboundantly supplied with doctors, and the Cuban government is using its medical might to advance its image on the world stage. Cuban, with financial help from Venezuela, provides free medical care in Latin America, thereby forging closer relations with other countries in the region. Since 2004 they have set up over 30 small ophthalmological outreach hospitals in Central and South America, fully equipped and staffed, and have treated over 750,000 non-Cubans with eye problems.

In Caribbean countries (Jamaica, Antigua, Guyana, and others) the Cuban government jets patients directly to Cuba for eye surgeries including cataracts, corneal transplants and strabismus. The patients’ expenses are paid in full by
the Cuban government. In Jamaica in the first years they were sending up to 8 flights per month, but that’s now reduced to about 100 people every 3 weeks.\textsuperscript{46}

This system of eye care is definitely allowing many of the region’s poor to receive sight restoring care and is a significant part of eye health care in Latin America and especially the Caribbean. But, it’s not without its problems. There are reports that the Cuban doctors are not always accessible. When their 2-year mission is completed in a country, they may leave abruptly and not be replaced, leaving patients without the care they came to rely on and a local health care system not ready step in\textsuperscript{47}. The Cuban doctors are often not personally or culturally connected to the people they serve.

The Guatemala experience with the Cuban eye doctors is common in Central America. In recent years poorer, debtor nations were encouraged to privatize their health care systems in order to reduce government spending. This health care delivery change especially affects the poor who can not afford private health care. To rectify this lack of care for the poor, governments like Guatemala have welcomed the availability of free care from Cuba. The Ministry of Health in Guatemala touts the Cuban eye doctors as top-notch and the poor are sent to government hospitals where the Cubans work. However, criticism in Guatemala suggests the quality of care is being sacrificed in a bid to run up impressive statistics regarding the number of patients being seen. This criticism comes from 2 sources: firstly from the local ophthalmologists who have to provide care for follow up, complications, and mistakes; and secondly, from the patients themselves, who feel they are treated like cattle and herded through their surgical care with little or no follow-up.

The Cuban doctors are seen by Guatemalans as a temporary and unreliable health care band-aid. Their presence is dependent on the whims of unstable political systems. For optometrists working in the social service sector there are few quality eye clinics available to receive their surgical referrals. A long term solution to improve eye health care delivery in Latin America should include the training of more local doctors. The Cuban doctors are filling a need, but not offering the sustained level of care and commitment as a sound public health system should provide its citizens.

**Discussion Questions:**
1. What are the advantages of foreigners providing direct eye care to patients in developing countries? What are the disadvantages?
2. Cooperation for Development is an international concept where countries work together to improve the development of the lesser developed country. Using the example of Misión Milagro, how could this program be improved to
provide more sustainable and local eye care? Are there similar examples in optometry?

Study Questions

1. What are some of the determinants of visual health in the Americas?
2. What are the dominant health care reform strategies currently targeted for Latin America?
3. What are the most common causes of blindness and visual impairment in the Americas?
4. Which countries in the Americas allow optometrists to legally use diagnostic pharmaceutical agents, and allow for the use of topical therapeutic pharmaceutical agents?
5. How many countries have optometric education programs in the Americas?
6. How many countries have national laws regulating the practice of optometry?
7. Where were the first two schools of optometry established in Latin America?
8. What are the challenges facing the development of optometry in the Americas?
9. How do these challenges compare to those of other regions of the world?
10. What role does optometry currently fill in public health in the Americas?
11. How does the situation in these countries differ from the situation in your country?

References


(WHO/PBL/96.56).


1. What are some of the determinants of visual health in the Americas?
The determinants of visual health in the Americas are similar to that of health in general—religion, family, poverty, security, politics, location of living (urban vs. rural), lifestyle, educational levels, working conditions, environmental conditions, access to health care and eye care, to name a few. Do a little research of the Americas on your own, or draw from your own experiences. Which factors and in what way do they affect vision?

2. What are the dominant health care reform strategies currently targeted for Latin America?
In the past, decentralization of service provision from the capital city, decentralization of control from the government to other entities, and the provision of health care in the private sector increased. Since the Alma Ata Declaration of Health for All in 1979, the focus for improving health care systems has shifted to the provision of primary care including prevention efforts and increasing the public’s awareness about health (health promotion) has dominated. What is the evidence that this approach is working? What is working and what is not working?
3. What are the most common causes of blindness and visual impairment in the Americas?
The number one cause of legal blindness as defined by the World Health Organization is cataract, followed by retinal diseases such as glaucoma and diabetic retinopathy. Uncorrected refractive error is one of the main limiting factors in people’s ability to carry out their daily living activities. The World Health Organization changed its definition of blindness to include ‘presenting’ visual acuity limitations, regardless of cause. This paradigm change created an increasingly more important emphasis on refractive error around the world, and in the developing countries of the Americas. Data is quite sparse regarding the epidemiology of visual and ocular conditions. Note that more research is needed in this area.

4. Which countries in the Americas allow optometrists to legally use diagnostic pharmaceutical agents, and allow for the use of topical therapeutic pharmaceutical agents?
United States of America, Canada, and Colombia. Why is this so? Why do other countries NOT have the privilege to use DPAs or TPAs? How does this affect the eye health of the citizens of a country?

5. How many countries have optometric education programs in the Americas?
Fifty-seven educational institutions exist in only 15 countries. Is this enough? What challenges do the teaching institutions face around the world?

6. How many countries have national laws regulating the practice of optometry?
Nine. What would it take to get optometry legalized in all countries?

7. Where were the first two schools of optometry established in Latin America?
Mexico in 1950, and Colombia in 1967. How does this compare to the history of optometry education in your country?

8. What are the challenges facing the development of optometry in the Americas?
Educating enough optometrists to fill the need with quality programs, legalizing the practice of optometry in more countries, harmonizing the definition and scope of optometric practice, regulating and enforcing optometry laws, increasing the number of optometrists that practice in underserved areas, including the public sector, increasing public awareness about the importance of eye care and what is an optometrist, creating policies which create opportunities for people of all socio-economic and cultural backgrounds to be able to access and afford optometric care, eliminating the inter-professional conflicts between ophthalmology and optometry to begin to work as a team…Can you name others?

9. How do these challenges compare to those of other regions of the world?
These challenges are similar to other regions of the world. What could be done to face these challenges and eliminate them?
10. What role does optometry currently fill in public health in the Americas?

In some countries, optometrists work in the public health sector, i.e. for government run clinics or on policy planning commissions. Optometrists advocate for visual health policies. In most countries, optometrists serve as an entry point into the health care system. Optometrists in some countries perform research on the clinical, biomedical and social levels. Optometrists provide preventive eye care on the primary and secondary levels. Optometrists educate the public about visual health. Optometrists volunteer to serve the underserved. Optometrists work to prevent eye injuries, to prevent falls, to rehabilitate the visually impaired….What else? What’s missing?

11. How does the situation in these countries differ from the situation in your country?

What did you learn about optometry from reading this chapter? What does increased understanding of the global situation mean for you and what your role will be in your career?

Appendix C: Discussion Guide for Teachers for use of the Case Studies

The section of this textbook on World Optometry is designed to be an overview of the global situation confronting our profession. A study of the differences of optometry, whether in the Americas, Europe, Asia or Africa allows for an understanding of and a new respect for the growth of our profession. This also allows for a growing understanding of the context within which we can practice our chosen profession and the broader role we play as individual optometrists and collectively as one of the health care professions.

Often, an analysis of a profession entails studying its history. The existence of the profession of optometry is a living, changing entity, and can be experienced by learning about the situations of other countries. The variety of Latin American optometry as compared to North American optometry is a great example.

As the authors of this particular section, we suggest that these case studies (which are true current events) be used to concrete the concepts presented in earlier sections of the textbook.

An instructor might wish to assign each case study to a small group to read and discuss together, and present the answers to the questions to the rest of the class.

Another idea might be to take a particular case study and ask students to relate it to what is happening in your country, or relate it to a particular point in your history. An instructor might want to ask a student or group of students to do some research on the topic, or to cite a similar example in another country.
With all of these case studies, ask the student to put themselves in the situation, and to reflect on how they might do things differently or the same, or whether they agree with the plan of action. Ask them what the relevance of the example means to them in their plans for practice. Ask them what the relevance of the example has to population health.

Another approach might be to use these case studies in the way that one might approach a clinical case study. What is the context, reason, background for each situation? What evidence exists? What evidence is needed to make this situation better?

Ask the students to draw conclusions, create hypotheses for future research, study or action. This will foster critical thinking in areas of population health which are slightly different from the clinical perspective.

Often these topics seem much less interesting to a student of optometry than, say, learning ocular disease, or diagnostic procedures, but it behooves them to remember that without understanding the context within which the profession exists, they would not have the opportunity to even learn some of the things they learn in other classes.