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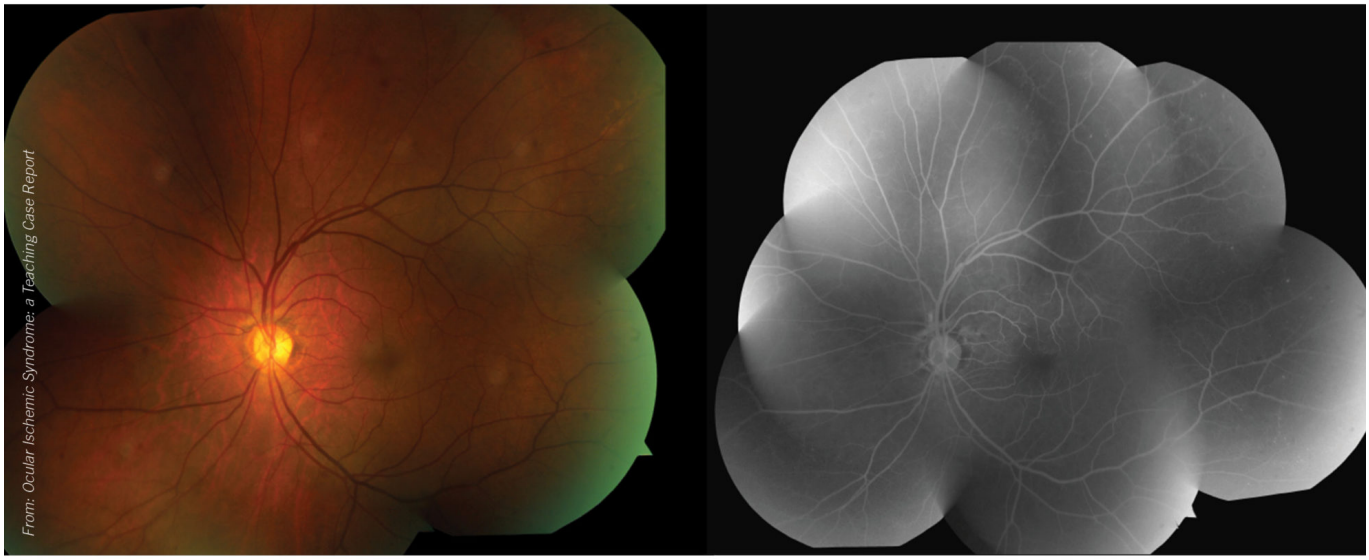




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# Optometric Education: Volume 46 Number 3 (Summer 2021)

## Table of Contents

# Articles

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# System Dynamics Simulation of the Eyecare Workforce Needs in the Dominican Republic

*Héctor C. Santiago, OD, PhD, FAAO* | *Optometric Education: Volume 46 Number 3 (Summer 2021)*

***Abstract***

*The prediction of needs in the eyecare workforce is critical for the development of professional education institutions. Vensim system dynamics software (Ventana Systems Inc.) was used to model the optometric and ophthalmologic workforce in the Dominican Republic after the recent opening of a new professional optometry program. The model showed that the optometry profession will saturate after 15 years if practitioners without university education (mostly empiricists) continue to practice. Even without empiricists, saturation will occur after 60 years. Legislation must be enacted to reduce empiricism. The optometry program must expand the scope of optometric education and legislation and monitor the number of students to best serve the needs of the Dominican population and avoid professional workforce saturation. System dynamics simulation can be used to model the eyecare workforce and model public health issues in optometric education.*

***Key Words:*** *system dynamics, optometric workforce, ophthalmologic workforce, public health, Dominican Republic, visual mapping*

## Background

The determination of needs in the eyecare workforce of a nation is critical for the education, training and allocation of optometrists, ophthalmologists and other ophthalmic personnel. Given the multiple interacting variables, it is often challenging to predict these needs.[1-2] The Dominican Republic is a country in the Caribbean region with a population of approximately 11 million people.[3] The prevalence of blindness in the 50 and older age group in the Dominican Republic is 2.1%.[4] A recent study in a clinical population in Pedernales, a Dominican town at the border with Haiti, found an overall presenting prevalence of visual impairment of 48.2%, which was reduced to 15.8% after refractive correction. Among the patients 50 years and older, the presenting visual impairment was 60.2%, the highest reported in Latin America. The prevalence of impairment was reduced to 23.8% with eyeglasses, indicating the need for optometric care.[5-6]

In the Dominican Republic, as in the United States, ophthalmologists are medical doctors with additional residency training in ophthalmology. They may perform refractions, diagnose and manage ocular disease, and perform ocular surgeries. In 2019, the Dominican Republic had 350 practicing ophthalmologists.[7-8] Medical education is regulated and accredited by the Ministry of Higher Education, Science and Technology (MESCyT), and medical practice is regulated by the Colegio Medico Dominicano (Dominican Medical Association).[9-10]

The practice of optometry in the Dominican Republic is not regulated or supervised as a health profession by any government agency. Optometric practitioners pay taxes on the sale of eyeglasses and

contact lenses as businesses. There are approximately 500 optometric practitioners in the nation.[11] In the absence of professional optometric regulation, those without any formal optometric training are the majority of practitioners (empiricists) who perform autorefraction and dispense eyeglasses. This group has only a high school education. A second group of optometric practitioners (approximately 20) received limited technical training after high school (one to two years), previously at the Armando Espaillat Cabral Institute and most recently at the Universidad de la Tercera Edad. They perform refractions (retinoscopy and subjective) and dispense eyeglasses and contact lenses. A third group ? composed of only four university-trained practitioners ? received professional optometric degrees (four to five years university education) outside the Dominican Republic and perform refractions and external and internal eye examinations.[a] Since 2019, optometric education is accredited by the MESCyT.[12]

The Dominican Optometric Association (ASODOP), founded in 1991, is an organization that represents about 300 optometric practitioners.[11] ASODOP holds annual meetings with educational programs for its members. In 2012, the association promoted an agreement between Inter American University of Puerto Rico School of Optometry (IAUPR) and the Autonomous University of Santo Domingo (UASD) to establish a professional optometry program. UASD canceled the agreement in 2016 before the opening of the program. In 2018, ASODOP supported a new agreement between IAUPR and the Technological University of Santiago (UTESA), which led to establishing and opening the first professional optometry program.[13]

UTESA, founded in 1976, is the largest private university in the Dominican Republic. Its mission is to offer non-denominational higher education to students of disadvantaged economic and social backgrounds. It has eight campuses across six cities in the Dominican Republic. It offers professional degrees in the health sciences (medicine, dentistry, pharmacy, optometry, psychology, veterinary medicine, nursing), engineering, law, education, economics and business administration. The professional Bachelor of Optometry program (Licenciatura) opened in September 2019 at two UTESA campuses in the capital city of Santo Domingo. This four-year optometric curriculum has 185 credit hours, including 2,135 lecture hours and 1,440 lab hours (including patient care).[13]

System dynamics modeling has been used to forecast workforce needs in medicine, dentistry, pharmacy and social care in England, nursing in Korea and dentistry in the United States.[14-16] System dynamics has also been used to develop scientific, social, business and political models.[17] More recently, it has been applied to public health planning.[18–19] In education, it is a useful tool to promote deeper learning and critical-thinking skills among students.[20]

Saraji and Sharifabadi reviewed 28 studies on the effectiveness of system dynamics models in forecasting specific outcomes. The studies included predictions on the demand for air travel, water, urban transportation, housing and petroleum. They also involved predictions of the housing supply, fuel and coal prices, and sales of cars. They found that system dynamics models can make accurate predictions compared to actual outcomes (less than 5% error) or more reliable forecasts than alternate methods such as multiple linear regression, exponential smoothing or artificial neural networks.[21-26]

General systems thinking postulates that a deeper understanding of systems can be obtained by examining patterns of behavior over time. These behaviors result from the interaction among many variables through feedback loops. Deep inside these patterns are structures and mental models of an organization. System dynamics involves simulation models using general systems theory to explore the inter-relationship among variables to produce outcomes of interest. Instead of a single snapshot, the models allow exploration of how outcomes change over time.

The present study explores the use of system dynamics to model the eyecare workforce needs in a developing country after opening its first professional optometry university program.

## Methods

A system dynamics simulation model was developed using the software Vensim PLE 7.3.5 (Ventana Systems Inc.).[27,b] Vensim is available as a free version and an upgraded paid version. There are more than 50 free tutorials available on YouTube and the company's website. Vensim was developed in 1985 for large business simulation. Its functionality expanded through time with Windows and Macintosh versions and a free personal learning edition (PLE) for educational use.[28] Vensim models have been successfully applied in the pharmaceutical, financial, energy, environmental, aerospace and health scenarios.[29-32]

**Figure 1.** A simple system dynamics simulation model for population changes using stocks, flows and feedback loops. Rectangles represent stocks. Flows are represented by pipes, flow regulators and spigots.
Click to enlarge

**Figure 2.** The optometric workforce of Dominican Republic model using Vensim modeling software. Rectangles represent stocks. Flows are represented by pipes, flow regulators and spigots. Click to enlarge

System dynamics models in Vensim are based on three elements: stocks, flows and feedback loops. Stocks are variables that accumulate over time, such as "population" in **Figure 1**. Flows can increase or decrease stocks, as in the case of "population growth" (which increases "population") and "population decay" (which decreases "population") in Figure 1. Feedback loops can be reinforcing (promoting growth or decay) or balancing (promoting the achievement of the desired state).

The model is based on the initial values, rate of change and factors that affect the stocks. For example, in our optometric workforce model **(Figure 2)**, the stock "total optometric practitioners" has an initial value of 500, and it is affected by the stock "university graduates" and "non-university practitioners." The initial 500 practitioners include approximately 476 without formal optometric training, 20 with some technical training, and four with foreign university-level optometric degrees. The total number of optometric practitioners present in the Dominican Republic was acquired from the Board of the Dominican Optometric Association.[9] "University graduates" has an initial value of 0, and changes by the "student acquisition rate" (60 per year) and the university "retention rate" (80%). UTESA provided data about the admitted students per year and the new university optometry program's expected retention rates.[13] The "non-university practitioners" has an initial value of 496 and changes by the rate "fraction

leaving." Finally, the "university graduates per million" variable is based on the "university graduates" and the Dominican "population in millions." The Dominican "population in millions" is based on the "birth rate" and "mortality rate." Demographic information (population, birth and mortality rates) for the Dominican Republic was obtained from the Dominican Republic Census.[3] The ratio of 100 optometrists per million of optometrists (1 per 10,000 population) in developed countries such as the United States was used as a standard for comparison.[33]

The total predicted number of ophthalmologists per million over time was based on the current number of practicing ophthalmologists, the number of new ophthalmologists, their annual attrition rate per year, and the population of the Dominican Republic. The current number of practicing ophthalmologists was obtained from the website of the Dominican Society of Ophthalmology.[7] The number of new ophthalmologists per year was supplied by the Institute Against Blindness due to Glaucoma.[8] The criteria for the recommended minimum number of ophthalmologists per million in Latin America was based on Hong et al.[34]

*Model assumptions*

Based on the sources listed, the following model assumptions were used:

- 500 optometric practitioners in 2019, including 476 without any formal training (empiricists), 20 with limited technical training, and four with university optometric degrees from outside the Dominican Republic
- A decrease in the number of practitioners without university training once the university program is initiated (This assumption is based on the availability of trained optometrists to substitute the empiricists and the approval of a law prohibiting optometry practice without professional education.) The model explores annual attrition rates of 0%, 5%, 10% and 20%
- 60 optometry students per year in the bachelor's program of optometry
- 80% retention rate at the school of optometry
- 350 ophthalmologists in practice in 2019
- 18 new ophthalmologists per year

Two independent models were run. The first was a simulation of the optometric workforce **(Figure 2)**, and the second was a simulation of the ophthalmologic workforce **(Figure 3)**.

## Results

**Figure 4** shows the total predicted number of optometric practitioners per million population for 60 years after opening the UTESA professional optometry program. The curves show how the ratio changes as the non-university practitioners (mostly empiricists) decrease by 0%, 5%, 10% and 20% annually. A ratio of 100 practitioners per million (1 per 10,000 population) will occur in 15 years with no attrition (0%) of empiricists. This ratio will occur in 24 years if the empiricists' annual attrition rate is 5% and in approximately 27 years if it is 10% or more. A short-term decline in the ratio lasting no more than five years will occur if the attrition rate is greater than or equal to 10%. After 60 years, the number of optometric practitioners will stabilize to approximately 160 per million (1 per 6,250 population) if there is no attrition of empiricists. After 60 years, it will stabilize to about 140 optometrists per million (1 per 7,000 population) if the attrition rate is 5% or more.

**Figure 5** shows the predicted number of ophthalmologists per million population for the 60 years after the UTESA optometry program's opening. The curves show how this ratio changes as the number of ophthalmologists decreases (attrition rates) by 0%, 1% and 2% annually. Under all conditions, the starting point is the current (2019) ratio in the Dominican Republic of 32.5 ophthalmologists per million. If there is no attrition of ophthalmologists (0%), the ratio will maximize at 46.2 ophthalmologists per million

after 31 years. With a 1% attrition rate, the ratio will be a maximum of 38.7 ophthalmologists per million after 20 years. With a 2% attrition rate, the ratio will maximize at 34.5 ophthalmologists per million after 11 years.

**Figure 3.** The ophthalmologic workforce model of the Dominican Republic using Vensim modeling software. Rectangles represent stocks. Flows are represented by pipes, flow regulators and spigots. Click to enlarge

**Figure 4.** Ratio of optometric practitioners per million (university-educated and non-university-educated optometrists) in the Dominican Republic during a period of 60 years. Year 0 represents the year when the university optometry program was initiated (2019). The curves represent annual attrition rates of non-university-trained optometrists of 0%, 5%, 10% and 20%. Click to enlarge

**Figure 5.** Ratio of ophthalmologists per million in the Dominican Republic during a period of 60 years. Year 0 represents the year when the university optometry program was initiated (2019). The curves represent annual attrition rates of ophthalmologists of 0%, 1% and 2%. Click to enlarge

## Discussion

The system dynamics simulation shows that if non-university-trained practitioners (mostly empiricists) can practice without restriction (0% attrition) along with university-educated optometrists, the number of optometrists per million population will achieve the United States' ratio in only 15 years. This scenario will create an oversupply of practitioners that may decrease the demand for university-educated optometrists. The public may not be able to differentiate between empiricists and trained optometrists to the detriment of primary eyecare quality. This was the experience of countries like Mexico, where the practice of the profession was unregulated until 2014.[35]

One important recommendation for the Dominican Optometric Association derived from the simulation is the promotion of legislation to prohibit optometry practice without a professional degree. The model indicates that such a law should be implemented to ensure an attrition rate of 5% or more annually among non-university-trained practitioners. The model predicts a ratio of one optometrist per 7,000 population after approximately 60 years with an attrition rate of non-university-trained practitioners of 5% or more. This ratio will create an eventual saturation that may decrease the number of applicants to the professional program or promote optometrists' migration to neighboring countries. UTESA should monitor the workforce needs in the coming years and adjust its admission policies to avoid this possible scenario.

Based on the available clinical data, the leading cause of visual impairment in the Dominican Republic is uncorrected refractive error.[5] The UTESA program must prepare its students to provide excellent refractive and functional care. The leading causes of blindness are cataracts, glaucoma and diabetic retinopathy.[4] UTESA must also prepare students for the diagnosis, treatment and management of primary ocular disease to serve the Dominican population's needs. In Colombia, an optometric therapeutic law was approved in 1997 before the country's optometry schools adequately prepared their students.[36] Legal challenges to the law required all schools to implement significant curricular changes to prepare optometrists for the expanded new role. Today, optometry is recognized by the Colombian Ministry of Health in the national eyecare programs.[37] The Colombian experience indicates that UTESA should develop, as early as possible, a broad curriculum to justify therapeutic privileges for the profession. A follow-up study should address the UTESA professional program's effectiveness in addressing the Dominican Republic population's eyecare needs.

The current (2019) ratio of ophthalmologists per million population in the Dominican Republic is 32.5. This ratio is above the minimum recommended international standard of 27 ophthalmologists per million population.[34] Nevertheless, it is well below the current (2019) ratio of 59 ophthalmologists per million population in the United States.[38] All our simulation scenarios predict that the ratio in the Dominican Republic will never achieve the United States' ratio.

In the United States, based on a survey of male ophthalmologists between 50 and 85 years of age, the annual attrition rate of ophthalmologists was about 2.7% annually.[39-40]

Because approximately half of ophthalmologists in the United States are younger than 50 years, the actual annual attrition rate for all ophthalmologists is below 2.7%.[41] According to our model, assuming a 2% annual attrition rate of ophthalmologists in the Dominican Republic, the number of ophthalmologists per million will reach a maximum of 34.5 per million after 11 years and decrease thereafter. One recommendation from this scenario is the expansion of the ophthalmology resident positions within a decade to avoid a decline in the ratio of ophthalmologists to population.

The conclusions obtained from the models have several limitations. First, it is assumed that there is no interaction between the optometric and ophthalmologic workforce models. It is likely that as the number of university-educated optometrists increases, there will be pressure exerted by non-surgical ophthalmologists to decrease the growth of the university program. A future expansion of optometry scope to include the treatment and management of ocular disease is also likely to increase ophthalmologic opposition. This situation could be incorporated into the model by assuming a dampening factor on the number of optometric applicants. The value of the dampening factor would increase as the number of optometrists grows.

Second, the current models consider stable birth and mortality rates through time in the Dominican Republic. In a future paper, as reliable information about changing birth and death rates becomes available, the model may be refined through a table or graph function for the Vensim simulation.

Third, it is assumed there is no attrition of university-trained optometrists during the 60-year period. In the United States, where the profession is mature and well-established, approximately 2% of optometrists retire annually.[42] When assuming a cohort of young graduates in the Dominican Republic (less than 25 years old), one can expect low percentages of retirees during the first 40 years. On the other hand, when assuming a cohort of older students entering the program, one may expect a higher percentage of annual retirees. Future data on the student body composition may allow for better refinement of the optometric workforce model.

Fourth, the model is limited in scope and only addresses eyecare workforce needs based on international ophthalmologic standards and the United States' optometric standards. Further refinements of the model may consider workforce needs based on population-based data on the prevalence of refractive error, visual impairment and ocular pathologies in the Dominican Republic. The currently available information is limited in detail and quality but may improve in the near future to allow model refinements.

Lastly, as in all simulation models, the present model is based on assumptions that may change over time, such as the number of admitted optometry students and their retention rate, as well as the number of new ophthalmology residents. However, the model could be refined as the values of these variables are known and applied in the simulation.

## Conclusion

This paper has shown an application of system dynamics to model the optometric and ophthalmologic

workforce in the Dominican Republic. The model produces predictions of the changes in the supply of eyecare professionals under varying annual attrition rates. These predictions allow for useful recommendations to be made regarding optometric legislation to curb empiricism, future expansion of the scope of the profession, changes in the number of admitted optometry students, and changes in the number of ophthalmology residents. Optometric educators could apply system dynamics simulation in their public health courses in diverse areas. For example, it could be used to model demographic changes, the development of epidemics, the effects of air pollution, the provision of immunization services, or workforce needs as in the present case.[14-19]

## Footnotes

[a] Mariano Belen, former President of the Dominican Optometric Association. Conversation with author, Santo Domingo, Dominican Republic. He has given permission to publish this information.

[b] The author has no financial arrangement with or interest in the Vensim software or Ventana Systems.

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**PEER REVIEWED**

# Utilization Survey of the First Two Cohorts of Optometry Graduates from the University of Medicine Pham Ngoc Thach in Ho Chi Minh City, Vietnam

*Robert E. Molter, Jr., OD, FAAO, Jeffrey L. Weaver, OD, MS, FAAO, and W. Howard McAlister, OD, MA, MPH, FAAO | Optometric Education: Volume 46 Number 3 (Summer 2021)*

***Abstract***

*The first two graduating classes of optometrists at the University of Medicine Pham Ngoc Thach (UPNT) have begun their careers. This study explores what these new optometrists have experienced working within the Vietnamese health system. A survey was sent to the 29 graduates of the first two UPNT classes. Overall, graduates are not fulfilling the role of providing independent comprehensive eye examinations. Graduates are hindered in development by lack of a national optometry law and lack of understanding about optometrists' capabilities, both within the public health system and among the general population. The result is that the graduates feel less fulfilled. Adoption of a job code for optometrists is needed to improve optometric services and professional satisfaction.*

***Key Words:*** *education, statute, scope of practice, Vietnam, employment, job satisfaction*

## Background

The purpose of this study is to explore what the optometry graduates of the University of Medicine Pham Ngoc Thach (UPNT) have experienced working within the Vietnamese health system. Secondary purposes are to educate the public on the ideal use of the optometrist in the Vietnamese health system and to discuss current barriers to autonomous practice within the public hospital system.

Until recently, eye care in Vietnam consisted only of a limited number of ophthalmologists, working primarily in a problem-focused way, and of refracting opticians at public hospitals and commercial optical shops. The system of ocular care follows the traditional system previously seen in China.[1,2] The opticians perform refractions primarily using trial lens sets; phoropter use is rare. The current quality of refraction varies widely and there is no requirement for formal refractive training. Some of the lower-quality refractions may consist of only a spherical equivalent refraction or a prescription from an autorefractor reading. There has been little preventive eye health and vision care. Furthermore, the more advanced eyecare resources are concentrated in the larger cities, primarily Ho Chi Minh City (HCMC) (south), Hanoi (north), and DaNang (central). As a result of this situation, many conditions such as glaucoma, cataract and retinal breaks progress undetected and untreated, leading to blindness. Early recognition of these conditions can lead to more effective treatment and improved visual outcomes. The lack of ocular surveillance is especially pronounced in the countryside where people need to travel relatively large distances to seek eye care. Optometry is being developed to bring comprehensive eye care and ocular health monitoring to Vietnam to reduce preventable blindness.

Optometry was first introduced to Vietnam as a profession with the graduation of 12 Vietnamese optometrists from the UPNT Optometry program in 2018. The first four classes admitted consisted of 49 females and 27 males. The optometry program awards a four-year bachelor's-level degree following high school. Entrance to both optometry and medical schools is competitive and there is no four-year general education before beginning a course of medical or optometric study. In contrast, ophthalmologists in

Vietnam must complete a three-year residency following a four- to five-year course of study in general medicine. Medical students enter their program directly from high school as the optometry students do, and from the same applicant pool. This is similar to many education systems around the world, but unlike American medical/optometric education where an undergraduate degree is generally obtained prior to entry into professional school. There are no separate standardized entrance exams such as the Optometry Admission Test or Medical College Admission Test.

Tuition for the optometry program was subsidized partially by the Human Development Committee of Ho Chi Minh City for the first three years of the program. That support has now ended (recent graduate, oral communication, February 2020). The current tuition paid annually by the students is approximately $500 USD, which covers both semesters.[3] The tuition at the sister program in Hanoi is 10% higher at $550 USD.[4]

The instruction in the UPNT Optometry department mirrors a traditional Western-style optometry school curriculum but with perhaps a greater portion of the first year dedicated to basic science classes such as physics and anatomy. Some political and military training is required, which is standard for all students in Vietnam. The second and third years are intense with didactic and lab instruction in the core optometry subjects, followed by a fourth year primarily of practical clinical experience. The clinical experiences include working within the various departments at the main public eye hospital in HCMC. Unfortunately, the students often only observe and do not participate in the care delivered. The core clinical experience is in the Academic Vision Center (AVC), which was started as part of the general health clinic within UPNT and exists to serve the needs of the medical students and staff of UPNT. Although the facility is open to the public, its current clinic patient base is primarily young, healthy students. The curriculum used for the didactic instruction has been developed by the Brien Holden Vision Institute (BHVI) with the input of recognized experts in optometry from around the world. This curriculum is freely available to all at the BHVI website.[5]

Table 1. Click to enlarge

The founding of the Vietnamese optometry program has been supported by the Vietnamese Ministry of Health (MOH), UPNT, BHVI, VOSH International and several other non-governmental organizations and interested parties. The program is designed to produce World Council of Optometry Competency Level 3 optometrists. This is an optometrist who investigates, examines and evaluates the eye and adnexa and associated systemic factors to detect, diagnose and manage disease, including the use of diagnostic drugs.[6] See **Table 1** for an explanation of the four WCO levels. Therapeutic drugs are taught in the program, but it is expected that the optometrist will not have prescription drug privileges when the law is formalized. There is hope that, when better established, the program could be expanded to award a five-year master's or eventually a Doctor of Optometry degree.

A possible near-term model for the Vietnamese program is the optometry program in Hong Kong. The Hong Kong system has had varying levels of certification, with the highest level allowing full diagnosis and dilation, though the drug formulary is minimal.[7] The lowest level is refraction-only optometrists.[8] Having a multilevel certification would allow for the uncertified refractionists in the country to continue to practice, and in time require certifications for all levels of those working with optical/eyecare patients. A similar law was initiated in Taiwan requiring all refractionists to be certified.[9] The authors' best hope is that the Vietnamese will model the American system of optometry, with full diagnosis, treatment and even some minor surgical procedures such as foreign body removal allowed. This training has already been part of the Vietnamese course at UPNT. The optometric scope of practice in the United States and other parts of the world has been a slow progression over many years, and Vietnam may expect the same. Hong Kong started a board of optometry only as recently as 1984. Ideally, the profession of

optometry in Vietnam will evolve into a broad practice to mirror the training that the new optometrists have received. Realistically, however, it will take some time for the general public and the authorities to understand and better appreciate the role of optometry in safeguarding the public health regarding eye care.

Although the first two cohorts from UPNT have begun their careers, Vietnam has not yet adopted a statute to govern the profession of optometry within the public health system. This issue, commonly referred to as the job code, is currently being discussed in the MOH in Hanoi. The job code is the law within the MOH that will govern the profession of optometry in Vietnam. A job code is required for every profession operating within Vietnam's health system. Each job code not only sets salary and remuneration guidance for hospital administrators, but also defines the scope of practice for each profession. Job codes cannot be introduced at any time, but rather only during a period of review. The review happens once every five years, and 2020 was a year of review, and an optometry job code was discussed. However, before being sent to the Prime Minister for signature, the job code must have input and review from several relevant ministries including the Ministry of Home Affairs, the Ministry of Labor and the Ministry of Finance, as well as several committees within the MOH. Until a decision is reached, hospital administrators or department heads have no official information to use in assigning tasks for the optometrists.

This study explores how the first two cohorts of graduates from the UPNT Optometry program have been utilized by the various hospitals to which they have been assigned, as well as their other modes of employment when reported. No review board nor ethics committee was known to be available. However, the World Medical Association's Declaration of Helsinki guidelines for medical research were followed. In addition, this research is eligible for exemption from regulations because it involved only a survey; the primary investigator recorded information in such a way that subjects cannot be readily identified; and any disclosure of identifiable information would not place the subjects at risk.

## Methods

The survey was sent online to all 29 graduates from the first two UPNT classes. The response rate was 86% (25 anonymous responses were received). Data analysis was performed using Microsoft Excel (version 365).

Data was organized in simple spreadsheet form. The respondents were nine males (35%) and 17 females (65%). Age was not asked on the survey, but the age of most graduates is within one year of 22. No "non-traditional" students have been admitted to the program to date.

## Results/Discussion

*Question 1: In what type of work are you currently employed?*

The distribution of the graduates' practice locations has been dictated in part by the local health department **(Figure 1)**. Each graduate was guaranteed an assigned job in a public hospital. Several have left these positions to pursue other practice opportunities. Seven graduates have been assigned to the optometry program at UPNT to serve as the future teaching core of the optometry department. One of these is abroad taking a master's in optometry course, and the rest are working as teaching assistants in both the UPNT Optometry department and in the school's AVC. The AVC is the primary teaching clinic associated with the optometry program. Interestingly, the optometry students are the only student clinicians in the clinic. The medical students are not allowed to practice at the facility. The college clinic was not established as a teaching clinic for the medical students, but rather as a clinic to generate additional income for the university. The medical school's faculty are able to supplement their earnings by working at this clinic. As in the United States, medical educators are among the lowest paid segments

of their professions. Several private eye hospitals and ophthalmological offices in the city have employed some graduates as well. Most of the graduates report working more than one job.

Figure 1. Click to enlarge

The demand for optometrists is expected to grow significantly once the practice parameters are defined by the anticipated job code. Increased demand will likely lead to higher salaries for the new optometrists. Currently, while the average wage in Vietnam is $150 (U.S. dollars, USD) per month, total salary for the optometrists surveyed averaged $425 USD per month for all work undertaken.[10] Although low by Western standards, the wages reflect the scales under which health care is delivered in Vietnam. A basic visit to a public eye hospital costs an uninsured patient approximately 100,000 Vietnamese Dong (VND) ($4.27 USD). Comprehensive exams are not offered, rather everything is problem-focused. If warranted by the initial visit, which includes visual acuity and slit lamp exam, by the ophthalmologist, a refraction may be ordered ($1-$2 USD additional fee). A fundus exam may also be ordered for a nominal additional fee. Examination fees at private ophthalmology offices can range from 200,000 to 500,000 VND ($8.54-$21.34 USD), and services included vary widely from office to office.

*Question 2: What exam skill are you personally performing?*

The data clearly show that the group of new Vietnamese optometrists are not routinely performing comprehensive examinations in their daily assigned tasks **(Figures 2-7)**. If one considers any average score value over three as what is usually performed as part of the exam, it can be seen that the young optometrists are typically used as refractionists. This would include history-taking, refractive services and some patient education regarding visual status. While disheartening to the graduates and faculty at UPNT who desire that comprehensive optometric exams would be routinely practiced, the level of practice is anticipated to improve when the MOH defines the job code for optometry. When optometrists are recognized as part of the healthcare system, it is expected they will be able to operate independently and perform comprehensive eye care within their given departments. As it is now, the optometrists are not allowed to independently examine patients without a licensed professional, usually an ophthalmologist, signing off on the patient.

Figure 2. Click to enlarge

Figure 3. Click to enlarge

Figure 4. Click to enlarge

Figure 5. Click to enlarge

Figure 6. Click to enlarge

Figure 7. Click to enlarge

*Question 3: What are your attitudes and job satisfaction thus far?*

Understandably, the young graduates are not fully satisfied with the scope of optometry currently allowed by their direct supervisors (ophthalmologists) **(Figure 8)**. Some ophthalmologists are unaware of what optometrists are trained to do other than refractive care, while others perhaps worry about optometry taking over some of their duties if allowed to become proficient. The young graduates recognize that they have unique training and skills but are not permitted to use their expertise in the current situation. In general, most believe they are underutilized and underpaid for the work they do.

Figure 8. Click to enlarge

The young optometrists also face some interesting cultural barriers to becoming independent

practitioners in the Vietnamese public hospital/public health setting. The culture for young people in this environment is to not speak up or try to educate their superiors about new things. It is expected that the new worker will remain quiet and obediently perform the tasks they are assigned. Although the graduates possess unique knowledge and skill sets as fully trained optometrists, culturally they are not comfortable with advocating for their abilities to their department heads. Furthermore, as newly trained optometrists, they are not yet confident in those optometric skills. Optometric skills need to be practiced and honed daily. They are not able to do this, so it becomes a vicious cycle of improper utilization leading to lack of confidence. The description of knowledge, skills and abilities of an optometrist must come from the job code. Ministerial guidelines in the form of a job code should better inform the administrators and heads of departments and lead to proper utilization.

When compared with other countries that have established optometric professions in Southeast Asia, the newly trained optometrists in Vietnam will have several crucial tasks to perform as they fight for relevance within the established healthcare norms of their country. The primary task will be to educate the healthcare system of their capability. An equally crucial task will be to educate the public about the value of preventive eye care. While the job code will outline their practice limits, it will be necessary for the optometrists to be well-educated in eye care beyond their practice limits and to develop a system of continuing education within the profession. Finally, creating a Vietnamese optometric association to help organize these efforts would allow the young professionals to form a united voice.

Limitations of this study include the small sample size, the fact that there is no data at this point from the school of optometry in Hanoi regarding these questions, and the possible reticence of some graduates to answer the questions. Another limitation is that no previous studies of this type were found to contrast the findings presented here. One recent study of Nepalese optometrists focused on their attitudes toward the formation of a new optometry school, but not on the satisfaction of the graduates in performing the assigned duties of a new profession in their country.[11]

## Conclusion

The first two cohorts of classically trained, WCO Level 3, Vietnamese optometrists have dispersed into a variety of practice settings. The graduates by and large are not fulfilling the role of providing independent comprehensive eye examinations. The graduates are currently being hindered in developing their talents and skills due to the lack of a national optometry law/practice definition and lack of understanding from hospital administrators and department heads about the services optometrists are trained to provide. They are further hampered by the culture of respect for their elders. This situation has made the daily working routines of the graduates less fulfilling for them. With the adoption of the anticipated job code for optometrists and better organization among the new Vietnamese optometrists, it is hoped that the current situation will change both in terms of the service optometrists will be providing to the public as well as their satisfaction in their new profession.

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# Features

## Guest Editorial

# Introducing Educator's Toolkit, a Teaching Resource for Optometric Faculty

*Keshia S. Elder, OD, MS, MS, FAAO | Optometric Education: Volume 46 Number 3 (Summer 2021)*

Keshia S. Elder, OD, MS, MS, FAAO

As optometric educators, we are not necessarily trained as teachers. Rather, we are subject matter experts who are expected to effectively teach. As most of us know, this is challenging. We tend to focus on maintaining our clinical competencies, which leaves less time to spend advancing our instructional competencies. Although I am formally trained in secondary education, in my 14 years in optometric education I have often found myself wondering what I can do to improve my teaching effectiveness.

To help all of us fulfill our dual responsibility to be doctors and teachers, *Optometric Education* is launching a new feature called "Educator's Toolkit." To achieve our essential learning outcomes, we must have knowledge of sound teaching theories and methods. Sometimes the hardest part of acquiring and implementing such knowledge is just getting started. This is where Educator's Toolkit comes in. It is meant to serve as an information and resources hub. Educators can use it to stay abreast of current trends in higher education pedagogy and to access ideas and useful tools that can be applied to optometric teaching.

We begin Educator's Toolkit in this issue of the journal by exploring principles and techniques for eLearning, a topic, which, thanks to COVID-19, is more relevant than ever.

Dr. Elder [kselder@uab.edu], an Associate Editor with *Optometric Education*, is an Associate Professor at the University of Alabama at Birmingham School of Optometry, where she also serves as Director of Diversity, Equity and Inclusion and Director of the Externship Program.

**Invitation to Participate**

# Call for Papers for Theme Edition: Diversity and Cultural Competency in Optometry

*Desiree Ifft | Optometric Education: Volume 46 Number 3 (Summer 2021)*

The population continues to become more diverse, and optometry must be able to meet the cultural, ethnic, racial, gender and linguistic needs of patients.

*Optometric Education* is inviting authors to submit scholarly papers addressing related themes such as diversity, cultural competency, gender issues and cultural awareness.

The deadline to submit papers for this theme edition is **Sept. 1, 2021**

For more information, e-mail journal Associate Editor Keshia S. Elder, OD, MS, MS, FAAO, or journal Editor Aurora Denial, OD, FAAO, DipOE.

## Editorial

# The Four-Year Optometric Education Program: Something's Got to Give

*Aurora Denial, OD, FAAO, DipOE | Optometric Education: Volume 46 Number 3 (Summer 2021)*

Aurora Denial, OD, FAAO, DipOE

Optometric scope of practice has evolved significantly in the past 46 years. Originally limited to refractive and binocular conditions,[1] the scope expanded by the mid-1970s (when the first four states had granted optometrists the authority to use diagnostic drugs[2]) and broadened again with the addition of prescribing privileges for therapeutic drugs. Today, optometrists are primary eyecare professionals[1] with significant responsibilities in diagnosis and treatment of many ocular conditions and diagnosis of some systemic diseases as well as timely referrals, follow-up care and patient education. In 2021, scope of practice includes topical treatment of glaucoma in all 50 states, use of oral steroids in 39 states, use of lasers to treat ocular conditions in eight states, and use of injectables in 20 states.[3]

The seismic changes in the scope of optometric practice have been accompanied by additional obligations to practice evidence-based medicine and continuously acquire new knowledge about diseases and diagnostic and treatment technologies. Despite this staggering amount of new information and increased responsibility, the education of optometrists has remained a four-year postgraduate program. Is this sustainable given that scope of practice will continue to expand and new information and technology will continue to emerge? How can we achieve in four years the goal of a high-quality, relevant education that is not mentally overloading for students?

### The Solution May Lie in Letting Go

To effectively prepare future optometrists via the current four-year postgraduate program, educators will have to let go. Perhaps we start with eliminating some course material. Is there any course material that could be taught before entry into optometry school, for example in undergraduate courses (prerequisites) or a brief virtual summer curriculum completed independently before matriculation?

We must also acknowledge that the optometrist's role has evolved from primarily gathering data to primarily exercising analytical skills. Should we let go of teaching some data-gathering technical skills and focus on critical-thinking and analytical skills? Do we need to teach binocular indirect ophthalmoscopy if a widefield scanning laser ophthalmoscope is available? Students may be better served by faculty teaching the skills involved with interpreting the images. In didactic teaching, a shift away from specific information and toward key concepts may be helpful. Key concepts provide a broader understanding of material, which can then be applied to different scenarios.

Students may need to play a role, too. They may need to change their perceptions and expectations of optometric education. The current expectation is that the curriculum and faculty will provide all the information necessary for success in practice. This sets up a passive system of learning in which students receive and internalize the instructor's knowledge. Instead, optometric education should provide students with the skills, tools and knowledge they need for lifelong independent learning. This would require students to assume responsibility for their learning and take charge of learning in an active manner. It would free up time in the curriculum and give students the skills needed in the real world.

### Change is Difficult; Collaboration Can Help

The response to optometry's challenge of how to provide a relevant education in a reasonable amount of time is not straightforward. The idea of not teaching skills that have been the foundation and identity of our profession for years is mindboggling. Lecturing and not providing every bit of information on a particular subject is scary. All healthcare professions are facing these issues. Therefore, we should collaborate with them to develop evidence-based solutions. We should also strive to conduct well-designed studies to contribute to the literature to help guide all educators.

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## Educator's Toolkit

# Principles, Techniques and Tools that Promote Successful eLearning

*Keshia S. Elder, OD, MS, MS, FAAO | Optometric Education: Volume 46 Number 3 (Summer 2021)*

Keshia S. Elder, OD, MS, MS, FAAO

During the COVID-19 pandemic, eLearning ? learning that occurs through electronic means ? increased exponentially. Many optometric educators found themselves teaching online classes for the first time in their careers. We were thrust into learning new instructional delivery techniques and new technologies in a very short time. We experimented with learning management systems and figured out how to use electronic teaching aids that we had not found time to learn in the past. Now that we have cleared the initial hurdles of adapting to modified teaching platforms, we can focus on maximizing their effectiveness as teaching tools so our students are successful eLearners.

### First Things First

**Figure 1.**Click to enlarge

Compared with traditional instruction, eLearning has many advantages. It is customizable and more broadly accessible. It is self-paced for students, and both they and their teachers can benefit from learning analytics. However, an eLearning course must do more than look good. It must be effective.

When considering the design of an eLearning course, one must answer several foundational questions. For example, it is important to consider your audience and the learning goals, which will inform the delivery system. The Learning Rooms recommends five questions to ask yourself when developing an eLearning course **(Figure 1)**.

### Incorporation of eLearning Principles

Design and delivery of effective eLearning encompass a variety of strategies, including the application of eLearning principles, such as those developed by Mayer **(Table 1)**. According to Mayer's Cognitive Theory of Multimedia Learning (eLearning is a form of multimedia learning), there are dual channels (auditory and visual) for processing words and pictures, and people have a limited capacity to actively process the information in the channels.[1] Application of eLearning principles reduces the cognitive load, which frees the working memory to be used for learning and helps to ensure the instruction aligns with cognitive learning processes.

I wonder how many optometric educators are familiar with eLearning principles, such as the redundancy principle, the coherence principle or behavioral vs. psychological engagement? Based on your teaching experience, how would you respond to the following questions?

- Do you believe adding elements such as pictures, graphics, sounds or music to a lesson to make the presentation "pop" engages students and facilitates learning? I would have responded yes. In fact, as Harp and Mayer found, extraneous pictures can interfere with learning.[2]
- Do you think students learn principles more effectively by playing a game in which they apply the

principles or by using a slide presentation? My guess would have been a game, but in a study by Adams et al., students who learned with games performed worse than students who learned with slideshows on several parameters, including retention and post-test scores.[3] Interestingly, this finding aligns with the idea that psychological engagement and not behavioral engagement is the driver of cognitive learning.[1]

- In a narrated animation, do you think having the narrated text on-screen simultaneously reinforces what students are learning? Again, I would have said yes. However, several researchers, including Austin[4] and Moreno and Mayer,[5] found that students performed better when they did not have on-screen text to accompany the narrated animation.

Andrew DeBell, a training consultant with Water Bear Learning, has written an informative and well-illustrated article on how to apply Mayer's 12 Principles of Multimedia Learning. Other experts in eLearning have also created helpful resources, including websites and podcasts, for faculty **(Table 2)**.

**Table 1.**Click to enlarge

**Table 2.**Click to enlarge

### eLearning Authoring Tools

For help creating eLearning courses, educators can use an eLearning authoring tool. An eLearning authoring tool is software used for developing digital content. A variety of authoring tools, which are cloud-based or desktop-based and different in complexity and price, are available. They range from something as simple as the ability to add hotspots to an image (click an area on an image and an action happens), to stand-alone course authoring software, to a learning management system with built-in authoring software. Many eLearning authoring tools, including these, offer a free trial:

Adobe Captivate

- Desktop-based course authoring software
- 30-day free trial available
- Student and teacher price: approximately $400 one-time fee or $34/month subscription

Articulate 360

- Family of eLearning course authoring tools that includes desktop and web-based applications
- Includes Storyline 360 and Rise 360
- 60-day free trial available
- Academic price: approximately $500/year/user on a personal plan; $650/year/user on a team plan

Gomo

- Cloud-based eLearning software
- 21-day free trial available
- Pricing: approximately $1,000/year/user; $3000/year for a team up to four

Adapt

- Open-source web-based course authoring tool
- Price: free

Camtasia

- Screen capture and video editing software suite
- Used in conjunction with eLearning authoring software
- 30-day free trial available
- Education pricing: approximately $170 one-time fee

### The Cardinal Rule

While an array of technologies can be incorporated into eLearning courses and used in creating them, it's important to remember they are the means, not the end. If not used properly, technology does not support learning. The key to successful eLearning and teaching, as Krippel et al. state in their paper "Multimedia use in Higher Education: Promises and Pitfalls," is that pedagogy must drive education technology, not the other way around.[6] It is vital to understand and implement this concept as we continue to explore instructional approaches for online settings.

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**Announcement**

# Student Award in Clinical Ethics: 2021 Winning Essay Explores Potentially Thorny Issue

*Desiree Ifft | Optometric Education: Volume 46 Number 3 (Summer 2021)*

Tam Tran, OD

*ASCO and its Ethics Educators Special Interest Group are pleased to announce Tam Tran, OD, as the winner of the 2021 Student Award in Clinical Ethics. Dr. Tran graduated this year from Illinois College of Optometry and plans to make binocular vision a focus of his career. His winning essay, "The Ethical Muddle of Sick Notes: Can We Do Better?" appears below.*

*The Student Award in Clinical Ethics competition, sponsored by Alcon, is open to optometry students during any point in their professional program at an ASCO-affiliated school or college of optometry. The winner receives an engraved plaque and $1,000.*

*ASCO thanks all students who submitted essays this year.*

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# The Ethical Muddle of Sick Notes: Can We Do Better?

*By Tam Tran, OD*

To utilize the benefit of paid leave or be absent from school for a health reason, employees and students are often required to present a "sick note" from a doctor. It is not uncommon for patients to ask their optometrists to provide such a note. Many requests for sick notes are clinically legitimate, but they can be misused, too. For example, patients could withhold information to prolong diagnosis or treatment. In many cases, the issue is not a perplexing medical decision, but rather an immoderate demand. Thereby, optometrists can find themselves in a quandary: grant the request for a note to "proactively serve the needs of the patient," as stated in the American Optometric Association (AOA) Standards of Professional Conduct,[1] or deny the request based on clinical judgment? Furthermore, should doctors alone carry the responsibility of deciding whether a patient should stay home or return to work or school?

## Case Description

JM, a 52-year-old law enforcement officer, presented for severe dry eye OU. He reported eye irritation, photophobia, foreign body sensation, tearing and blurry vision. His best-corrected visual acuity was 20/30 OU. Slit lamp examination showed 3+ superficial punctate keratitis (SPK) OU. JM was counseled to use preservative-free artificial tears, omega-3 fatty acid supplements and warm compresses. He asked for and received a sick note due to being sensitive to light, which prohibited him from driving on duty.

During the follow-up visit one week later, JM said he had been complying with the treatment

recommendations, but his condition was unchanged. Tobramycin/dexamethasone eye drops (Tobradex) were added to the treatment regimen. JM requested and received another sick note for sick leave.

During the second-week follow-up appointment, JM reported an improvement in his eye condition, but said he was still experiencing mild-to-moderate discomfort and photophobia. He was advised to use supportive therapies such as sunglasses and artificial tears for symptom relief while on duty. JM said he felt unsafe to drive and persisted in asking for another sick note, which was provided.

During the third-week follow-up, JM's condition was further improved. Slit lamp examination showed 1-2+ SPK OU and his best-corrected visual acuity was 20/20-2 OU. The attending optometrist cleared him for work. JM, however, insisted that he felt unsafe to drive and wanted another sick note.

## Discussion

At this point, JM had taken three weeks off from work on sick leave. Based on clinical examination, his eye condition had improved enough to allow him to resume working. Yet, he still felt unsafe to drive on duty. As previously noted, optometrists have a duty to proactively serve the needs of their patients; however, they also have an obligation "to conduct themselves with integrity."[1] This requires us to walk a fine line between advocating for patients' best interests and being truthful in sick notes for patients' work or school. Was JM's unease caused by an unknown ailment, or was he taking advantage of his employer's sick leave policy? Given that no further eye abnormality was observed, additional examination or referral might have only put an unnecessary financial burden on the patient. On the other hand, blatantly accusing him of sick leave abuse would be premature and damaging to the optometrist-patient relationship. With no evidence either way, is it ethical to continue granting JM sick notes as he continues to report eye discomfort?

The ethics argument hinges on the choice between giving patients what they want or offering what they and society need. To tackle this dilemma, we need to uncover its root cause. It has become standard practice for society to demand medical documentation for sick leave. In regard to vision problems, optometrists have become an authority for providing such documentation, for example, on school forms and sick notes. However, because we also have an ethical obligation to act in the best interest of patients, we are put in the odd position of impartial arbiters between patients and their work or school. So far, except for driving restrictions and legal blindness, which are governed by laws, deciding for society who is "worthy" of what vision-related excuses is solely at optometrists' discretion. Such a situation is destined for trouble.

In fact, this demand for optometrists to "certify" everything eye-related has created a huge burden on both optometrists and patients. As defined in the AOA's Code of Ethics, it shall be the duty of all optometrists "to conduct themselves as exemplary citizens and professionals with honesty, integrity, fairness, kindness, and compassion,"[2] so whatever we write in the note is deemed truthful and accurate by the public. But what if we are not given the whole story? It swings the door wide open for sick leave abuse. As to patients, the policy of mandatory doctor's notes for sick days adds little to patients' well-being. They should make their own decisions on whether and when their illness requires medical attention. Unfortunately, the fear of losing jobs forces patients to either continue working instead of resting, or to pay extra money for a clinic visit merely to get a sick note.

To address this dilemma, society, not doctors, should decide conditions for coping with short-term illness. Ideally, society would push workplaces to provide paid sick leave without the need for a sick note. Currently, no U.S. federal law mandates companies to provide paid sick leave.[3] As of this year, only 13 states and Washington, DC, have enacted laws requiring paid sick leave.[4] Studies have shown that paid sick leave is cost-effective because it reduces employee turnover and also reduces the risk of exposing the public to infectious diseases, especially in a pandemic like COVID-19.[5,6] Patients with paid

sick days have the autonomy to decide how to spend their health benefit and when a visit to the optometrist is necessary. Reducing the number of office visits scheduled only to request a sick note would better allocate optometrists' resources to serving patients who are truly in need of care.

This is not to argue that the doctor's note should be abolished altogether. On the contrary, optometrists can play an essential role in supporting informed decision-making by workplaces and schools. In place of sick notes, a better alternative may be "fit notes," which England has been using since 2010.[7] Such notes focus on what patients are capable of doing at work based on clinical examination and let the workplace decide what to do.

Moreover, optometrists need to educate patients through effective communication. According to the AOA's Standards of Professional Conduct, "telling the truth is a necessary component of a trusting optometrist-patient relationship."[1] When facing unreasonable demands from patients, optometrists should educate patients about the difference between facts and feelings, as well as the limitation of optometry in decision-making for social dependencies. Patients need to understand that a reasonable request for a sick note is when optometrists need not create "sickness" for patients where there are just conflicting opinions.

## Case Resolution

It was not irrational for JM to be concerned about going back to work. His police work entailed extended outdoor activities (e.g., driving vehicles and directing traffic). Dry eye symptoms such as photophobia could increase the risk of accidents. In fact, per the Law Enforcement Officer Motor Vehicle Safety Report, motor vehicle-related incidents are a leading cause of line-of-duty deaths for law enforcement officers in the United States,[8] most of which occurred during daylight, in clear weather, and at speeds lower than 50 mph.[9] Nevertheless, JM's dry eye had significantly improved and was deemed to be of minimal interference to his job and low risk for driving. Per the AOA Standards of Professional Conduct, "When optometrists provide expert testimony within a judicial or administrative action, the testimony should be balanced, fair, and truthful based on scientific and clinical knowledge."[1] Given the ethical obligations in this case, it would have been inappropriate to continue advocating for JM's sick leave.

Because the sick leave policy at JM's workplace cannot waive a sick note, we decided to take the fit-note approach and let his employer decide how to accommodate him on duty. Following the Standards of Professional Conduct that optometrists have the duty "to treat patients without prejudice," and "to involve the patient in care and treatment decisions in a meaningful way, with due consideration of patient's needs, desires, abilities and understanding,"[1] we listened to JM's concerns and educated and reassured him on his readiness to work. We involved JM in determining what he could do and could not do. For the interest of public safety, JM was encouraged to start office work with no vehicle use in the near term. He was also instructed to continue using artificial tears and warm compresses and scheduled for a follow-up visit. A fit note was provided to advise his workplace to excuse JM from operating vehicles and to allow him to perform indoor office tasks.

## Conclusion

The requirement for a doctor's note to take sick leave has many negative social implications. Because optometrists are ethically obligated to serve in patients' best interests, positioning optometrists as objective authorities often leads to ethical dilemmas. Our society needs to legislate and expand paid sick leave without the need of a sick note, which affords patients the autonomy of seeking truly needed medical attention and improves their overall well-being. Optometrists ought to serve as advisors, not judges, to guide workplaces to make informed decisions on how to support employees during and after sickness.

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# Industry News

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## Industry News

### Company Joins AOA's Health Care Alliance for Patient Safety with Commitment of Funds

EssilorLuxottica announced its commitment to the American Optometric Association's (AOA) Health Care Alliance for Patient Safety (APS) with an annual investment of $450,000. The funds will support legislative efforts to increase patient access to care and protect the integrity of the doctor-patient relationship. Rick Gadd, President of Essilor North America, and Fabrizio Uguzzoni, President of Luxottica Wholesale, Americas, shared the news of EssilorLuxottica's role as a lead sponsor with the association's House of Delegates during Optometry's Meeting 2021.

"EssilorLuxottica is embarking on this opportunity to partner more closely with the AOA to advocate for doctors and patients and give vision a louder voice," Gadd said. "We stand with the AOA to ensure patient access to care is preserved and protect the integrity of the doctor-patient relationship. It's our commitment today to the AOA and all of its members to ensure the doctor's eyecare agenda is preserved and private practice remains strong."

Long-time advocates of private practice agendas, Millicent Knight, OD, FAAO, FAARM, FNAP, Essilor's Sr. Vice President of Customer Development, and Carl Spear, OD, MBA, FAAO, Luxottica's Sr. Vice President of Eyecare, will take active leading roles within the APS as representatives of EssilorLuxottica.

Through its advocacy efforts, APS supports laws, regulations and other public policy solutions designed to safeguard public health while educating patients, regulators and legislators about the importance of the doctor-patient relationship and existing and potential threats to patients' eye health and safety.

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